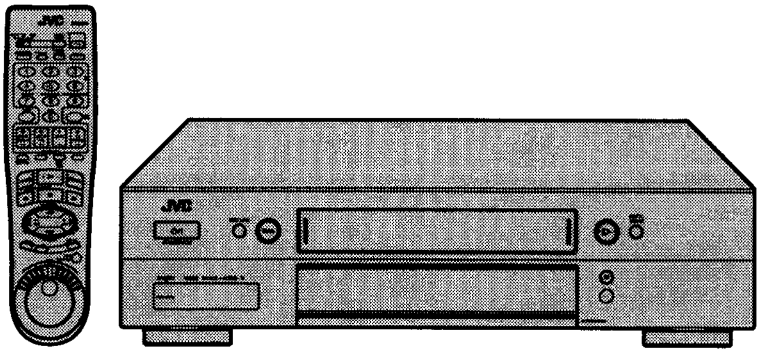
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S9500E/EH



ShowView

TIME SCAN

Hi-Fi S-VHS 625

SPECIFICATIONS

GENERAL

Power requirement	: AC 220 – 240 V∿, 50/60 Hz
Power consumption	
Power on	: 26 W
Power off	: 5.5 W
Power save (HR-S9500E only)	: 3 W
Temperature	
Operating	: 5°C to 40°C
Storage	: –20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 437 x 109 x 339 mm
Weight	: 5.0 kg
Format	: S-VHS/VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal,625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines (VHS) 400 lines (S-VHS)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)

Input/Output	: 21-pin scart connectors : IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1 S-Video connectors: IN x 1, OUT x 1

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channels 22 – 69 (Adjustable)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2, S-Video cable, Connector cover (for front panel connectors)

Specifications shown are for SP mode unless otherwise specified. E.& O.E. Design and specifications subject to change without notice.

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No. 82683
September 1998

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The following table lists the differing points between Models (HR-S9500E and HR-S9500EH) in this series.

	HR-S9500E	HR-S9500EH
POWER SAVE MODE	USED	NOT USED
STEREO DECODER	A2	NICAM/A2

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

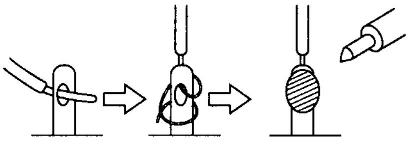


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

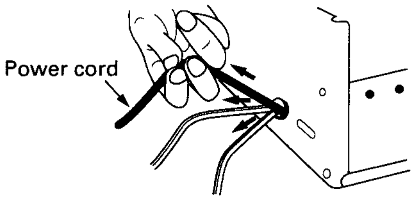


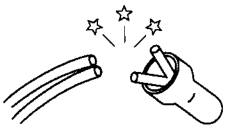
Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).



cut close to connector

Fig.3

       (2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

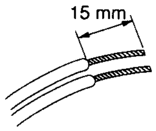


Fig.4

       (3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

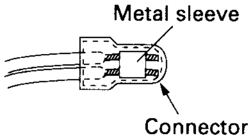


Fig.5

       (4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

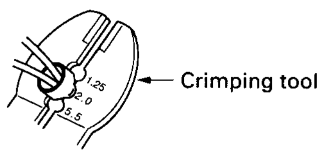


Fig.6

       (5) Check the four points noted in Fig.7.

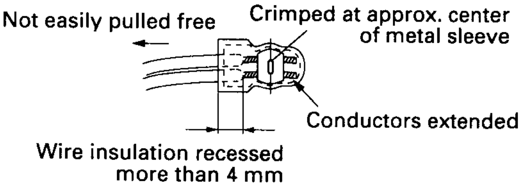

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

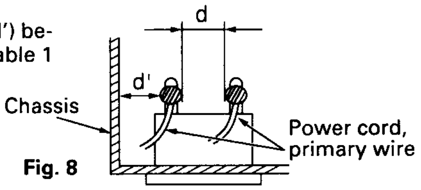


Fig. 8

4. **Leakage current test**
Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
Measuring Method : (Power ON)
Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

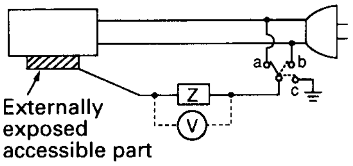


Fig. 9

5. **Grounding (Class I model only)**
Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
Measuring Method:
Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

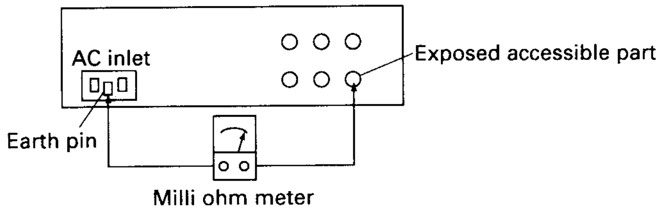


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

IMPORTANT

- Please read the various precautions on page 2 and 3 before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

S-VHS 625 SHOWVIEW

- Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".
- SHOWVIEW is a trademark of Gemstar Development Corporation. The SHOWVIEW system is manufactured under licence from Gemstar Development Corporation.
- Certain audio features of this product manufactured under a license from Desper Products, Inc. Spatializer® is a trademark owned by Desper Products, Inc.

For Italy:
"It is declared that this product, brand JVC, conforms to the Ministry Decree n. 548 of 28 Aug.'95 published in the Official Gazette of the Italian Republic n. 301 of 28 Dec.'95"

The STANDBY/ON ⏻/I button does not completely shut off mains power from the unit, but switches operating current on and off. " ⏻ " shows electrical power standby and " I " shows ON.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Failure to heed the following precautions may result in damage to the recorder, remote control or video cassette.

1. **DO NOT place the recorder ...**
   ... in an environment prone to extreme temperatures or humidity.
   ... in direct sunlight.
   ... in a dusty environment.
   ... in an environment where strong magnetic fields are generated.
   ... on a surface that is unstable or subject to vibration.
2. **DO NOT block the recorder's ventilation openings.**
3. **DO NOT place heavy objects on the recorder or remote control.**
4. **DO NOT place anything which might spill on top of the recorder or remote control.**
5. **AVOID violent shocks to the recorder during transport.**

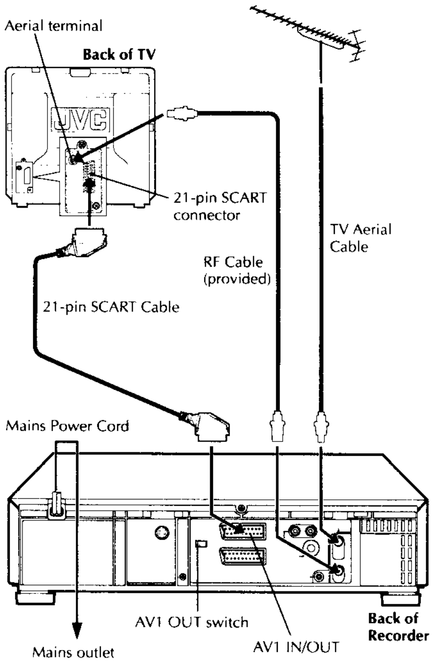
MOISTURE CONDENSATION

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions—just as water droplets form in the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder turned on for a few hours to let the moisture dry.

ABOUT HEAD CLEANING

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Be sure to contact your nearest JVC dealer if such troubles occur.

Basic Connections


Aerial terminal
Back of TV
21-pin SCART connector
TV Aerial Cable
RF Cable (provided)
21-pin SCART Cable
Mains Power Cord
AV1 OUT switch
Back of Recorder
Mains outlet
AV1 IN/OUT

Make AV connection if your TV has a 21-pin AV input connector (SCART) in order to reduce the possibility of interference. And if you are using a stereo TV, you will need this cable in order to enjoy stereo playback of videotapes.

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

1 CHECK CONTENTS

Make sure the package contains all of the accessories listed in "Specifications" (☞ pg. 66).

2 SITUATE RECORDER

Place the recorder on a stable, horizontal surface.

3 CONNECT RECORDER TO TV

The connection method you use depends on the type of TV you have.

RF CONNECTION

- *To Connect To A TV With NO AV Input Terminals . . .*
  - **a**– Disconnect the TV aerial cable from the TV.
  - **b**– Connect the TV aerial cable to the ANT. IN jack on the rear panel of the recorder.
  - **c**– Connect the provided RF cable between the RF OUT jack on the rear panel of the recorder and the TV's aerial terminal.

AV CONNECTION

- *To Connect To A TV With AV Input Terminals . . .*
  - **a**– Connect the aerial, recorder and TV as per "RF CONNECTION".
  - **b**– Connect an optional SCART cable between the AV1 IN/OUT socket on the rear panel of the recorder and the TV's 21-pin SCART connector.
  - **c**– Set the AV1 OUT switch to the appropriate position. See "AV1 OUTPUT SIGNAL SELECTION FOR AV CONNECTION" below.

4 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

After you plug the mains power cord into a mains outlet, the Country Set display appears on the TV screen and/or on the recorder's front display panel when the ⏻/I button on the recorder/remote control is pressed for the first time to power on the recorder; go to page 6 to perform Auto Set Up.

AV1 OUTPUT SIGNAL SELECTION FOR AV CONNECTION

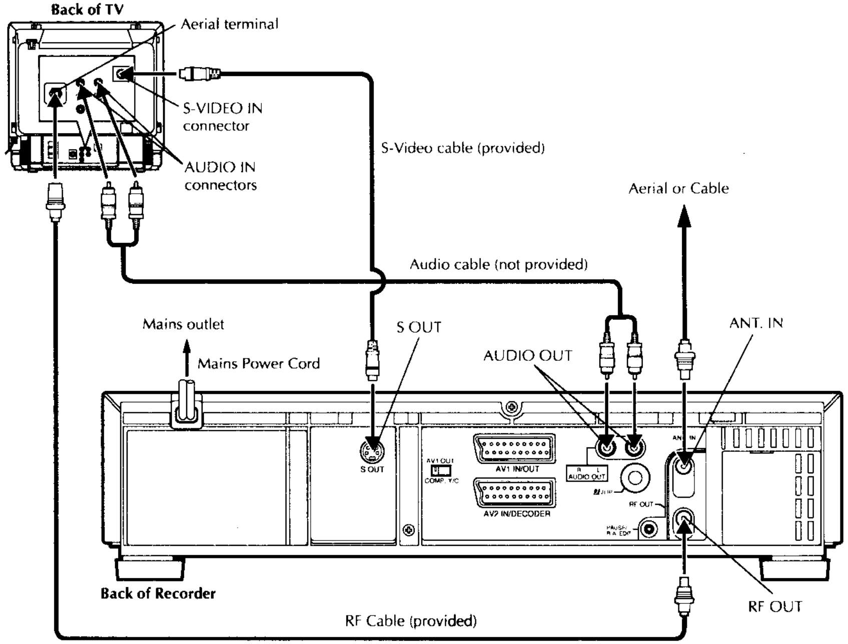
The AV1 IN/OUT connector accepts only a composite signal (regular video signal), but can deliver either a composite video signal or a Y/C signal (a signal in which the luminance and chrominance signals are separated) according to the setting of the rear panel **AV1 OUT** switch.

- If your TV's 21-pin AV input connector (SCART) is compatible only with the regular video signal, set this switch to COMP.
- If your TV's 21-pin AV input connector (SCART) is compatible with the Y/C signal, set this switch to Y/C. You can obtain high-quality S-VHS pictures.

NOTES:

- *Set your TV to the VIDEO (or AV), Y/C, or RGB mode according to the type of your TV's SCART connector.*
- *For switching the TV's mode, refer to the instruction manual of your television.*
- *To obtain high-quality S-VHS pictures, you can also use the S-VIDEO CONNECTION described on page 5.*

S-VIDEO Connection


Back of TV
Aerial terminal
S-VIDEO IN connector
AUDIO IN connectors
S-Video cable (provided)
Aerial or Cable
Audio cable (not provided)
Mains outlet
Mains Power Cord
S OUT
AUDIO OUT
ANT. IN
AV1 IN/OUT
AV2 IN/DECODER
Back of Recorder
RF Cable (provided)
RF OUT

- *To Connect to A TV With S-VIDEO/AUDIO IN Connectors . . .*

1 CONNECT RECORDER TO TV

- **a**– Connect the aerial, recorder and TV as per "RF CONNECTION" (☞ pg. 4).
- **b**– Connect the recorder's S OUT connector to the TV's S-VIDEO IN connector.
- **c**– Connect the recorder's AUDIO OUT connectors to the TV's AUDIO IN connectors.

2 CONNECT RECORDER TO MAINS

Plug the end of the mains power cord into a mains outlet.

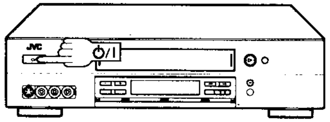
NOTES:

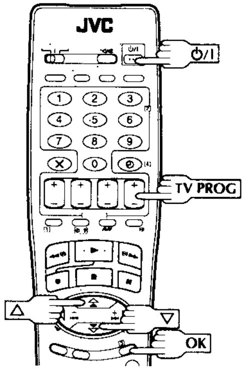
- *You can obtain high-quality S-VHS pictures.*
- *If your television is not stereo-capable, use the recorder's AUDIO OUT connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction. (☞ pg. 48)*
- *To operate the recorder with your TV using the S-VIDEO connection, set your TV to the VIDEO (or AV mode).*
- *For switching the TV's mode, refer to the instruction manual of your television.*

After you plug the mains power cord into a mains outlet, the Country Set display appears on the TV screen and/or on the recorder's front display panel when the ⏻/I button on the recorder/remote control is pressed for the first time to power on the recorder; go to page 6 to perform Auto Set Up.

Auto Set Up

Auto Channel Set/Auto Clock Set/Auto Guide Program Number Set/Auto Video Channel Set





International Telephone Country Code

SUISSE	: 41	SUOMI	: 358
ITALIA	: 39	PORTUGAL	: 351
ESPAÑA	: 34	DEUTSCHLAND	: 49
BELGIUM	: 32	NORGE	: 47
NEDERLAND	: 31	SVERIGE	: 46
GREECE	: 30	DANMARK	: 45
OTHERS	: - -	ÖSTERREICH	: 43

ATTENTION

Once you have performed Auto Set Up, even if the recorder's memory backup has expired, all the stored stations and their Guide Program numbers remain in the recorder's memory and the recorder will not perform Auto Set Up again. You only need to set the clock. (☞ pg. 58)

If you have moved to a different area, perform each setting as required.

- Video Channel setting (for RF connection users) ☞ pg. 49
- Tuner setting ☞ pg. 50
- Clock setting ☞ pg. 58

If a new station starts broadcasting in your area, perform tuner setting (☞ pg. 50) and, if necessary, video channel setting (☞ pg. 49).

When the ⏻/I button on the recorder/remote control is pressed for the first time to power on the recorder after you plug the mains power cord into a mains outlet, the Country Set display will appear on the TV screen and the recorder's front display panel. By simply selecting your country*, the Auto Set Up function sets the tuner channels, clock, Guide Program numbers and video channel** automatically.

* If you live in Belgium (BELGIUM) or Switzerland (SUISSE), you also need to select your area.

** Useful if you have connected the video recorder to your TV via RF connection (☞ pg. 4). Video Channel (RF output channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.

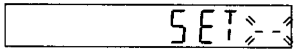
You can refer to the front display panel and/or the on-screen display to perform this procedure.

Before starting, make sure of the following:
- The TV aerial cable should be connected to the recorder.
- The recorder's mains power cord should be connected to a mains outlet.
- If you want to use the on-screen display, the TV should be set to its AV mode (with AV or S-VIDEO connection ☞ pg. 4 or 5) or UHF channel 36 (with RF connection ☞ pg. 4).

1

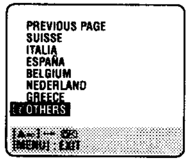
TURN ON THE RECORDER

Press ⏻/I on the recorder or remote control. The Country Set display appears on the front display panel and/or on the screen.



NOTE:

If you have connected your TV to the recorder with RF connection and the on-screen display appearing on UHF channel 36 looks distorted, perform this procedure referring to the front display panel.



2

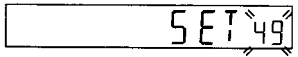
SELECT COUNTRY

If you are referring to the front display panel

Press △▽ to select your international telephone country code of your country referring to the chart in the left column.

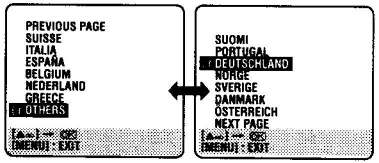
- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step **4**.
- If you have selected 32 (BELGIUM) or 41 (SUISSE), go to step **3**.

(Ex.) DEUTSCHLAND is selected



If you are referring to the on-screen display

Press △▽ to move the highlight bar (pointer) to your country's name.



- If you have selected a country other than BELGIUM or SUISSE, go to step **4**.
- If you have selected BELGIUM or SUISSE, go to step **3**.

3

SELECT LANGUAGE

Press **OK**. The Language Set display appears on the front display panel and/or on the screen.

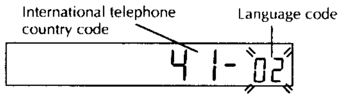
If you are referring to the front display panel

Press △▽ to select your language code.

Language Code

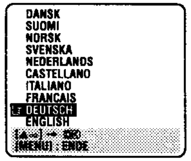
ENGLISH	: 01	NEDERLANDS	: 06
DEUTSCH	: 02	SVENSKA	: 07
FRANCAIS	: 03	NORSK	: 08
ITALIANO	: 04	SUOMI	: 09
CASTELLANO	: 05	DANSK	: 10

(Ex.) DEUTSCH is selected for SUISSE



If you are referring to the on-screen display

Press △▽ to move the highlight bar (pointer) to the language of your choice.



(Ex.) DEUTSCH is selected

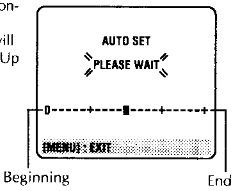
4

PERFORM AUTO SET UP

Press **OK**.

"Auto" appears on the display panel and blinks; do NOT press any button on the recorder or remote control until the display panel shows either the display as illustrated in step **5** or "– –:– –".

- If "– –:– –" appears on the display panel, refer to page 8.
- If you are using the on-screen display, the AUTO SET screen will appear. As Auto Set Up progresses, the "■" mark on the screen moves from left to right.



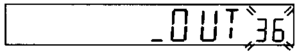
5

CONFIRM/SET VIDEO CHANNEL

If you have connected the video recorder to your TV via the provided RF cable only (RF connection)

The UHF channel that is shown on the display panel is your Video Channel.

To view picture signals from the video recorder, set your TV to the Video Channel. — Refer to the instructions supplied with your TV set for how to do this.

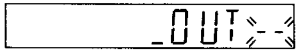


If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection), or via the provided RF cable, the provided S-Video cable and an audio cable (S-VIDEO connection)

You do not need the video channel so you have to set the video channel to off.

Press **TV PROG –** until the display panel shows "_OUT– –" to set the Video Channel to off.

To view picture signals from the video recorder, set your TV to its AV mode. — Refer to the instructions supplied with your TV set for how to do this.



6

FINISH AUTO SET UP

Press **OK** and refer to page 8 to check the results.

NOTES:

- *Auto channel set function takes place first; it assigns automatically all receivable stations in your area.*
- *Auto clock set function sets the clock automatically by reading the clock setting data from a station transmitting a PDC signal while auto channel set is being performed.*
- *During auto channel set, the recorder recognizes each station name of the detected stations and stores them in the recorder's memory, then automatically sets SHOWVIEW assigned Guide Program number for those stations according to the broadcast area.*
- *In the area where no TV station transmits a PDC signal, the recorder can perform neither auto clock set nor auto Guide Program number set.*
- ***For RF connection users:** The video recorder detects the channels which are not occupied by local stations and selects one channel automatically for your Video Channel that is located in the middle of more than 5 vacant channels.*
- *If there is a power cut, or if you press ⏻/I or **MENU** while Auto Set Up is in progress, Auto Set Up will be interrupted; be sure to turn off the recorder power once and try again from step **1**.*

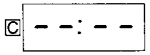
Auto Set Up results appear on the front display panel

A

When both auto channel set and auto clock set have been completed successfully the correct current time will be displayed after the **OK** button is pressed in step **6** on page 7.

B

When auto channel set has been completed successfully but auto clock set has not, "1" (channel position) will be displayed after the **OK** button is pressed in step **6** on page 7.

C


When neither auto channel set nor auto clock set has been completed successfully, "– –:– –" will be displayed.

You can check if the Guide Program numbers have been set correctly when you perform SHOWVIEW Timer Programming (☞ pg. 26); if the correct channel position number is displayed in step **3**, this confirms that the Guide Program number for the SHOWVIEW number you enter in step **2** has been set correctly.

A If both auto channel set and auto clock set have been performed successfully:

1 Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the **TV PROG** button(s).
- If station names (ID — ☞ pg. 55) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
- If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 52 – 56.

B If auto channel set has succeeded but auto clock set has not:

1 Turn on the TV and select its VIDEO channel or AV mode, then make sure that all necessary stations have been stored in the recorder's memory by using the **TV PROG** button(s).
- If station names (ID — ☞ pg. 55) have also been stored in the recorder's memory, the station name will be displayed at the top left corner of the screen for about 5 seconds when the recorder is tuned to a different station.
- If you want to set the tuner manually such as to add or skip channels, to change channel positions, or to set or change station names, see pages 52 – 56.

2 Perform "Clock Set" on page 58.

C If both auto channel set and auto clock set have failed:

1 Make sure the TV aerial cable is connected properly to the recorder and turn off the recorder power once, then turn the recorder power back on again.
- The Country Set display appears on the front display panel and/or on the screen; perform steps **2** – **6** on pages 6 – 7 again.

IMPORTANT

- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using SHOWVIEW, the recorder will record a TV programme of a different station. When programming the timer using SHOWVIEW, be sure to check whether the channel position on which your recorder receives the broadcasting station you wish to record is selected (☞ pg. 26, "SHOWVIEW Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations with an unacceptable picture ☞ "Delete A Channel" on page 53.
- **For RF connection users:** In certain reception conditions, the Video Channel may not be set correctly and interference may appear in the TV picture while the recorder's power is on. Set your Video Channel manually. ☞ pg. 49, "Video Channel Set".

INFORMATION

Language for the on-screen display

Auto Set Up also selects the language automatically for the on-screen display depending on the Country setting you have made in step **2** on page 6 (unless you have selected BELGIUM or SUISSE), as shown below.

SUOMI	→	SUOMI	SVERIGE	→	SVENSKA	ESPAÑA	→	CASTELLANO
PORTUGAL	→	ENGLISH	DANMARK	→	DANSK	NEDERLAND	→	NEDERLANDS
DEUTSCHLAND	→	DEUTSCH	ÖSTERREICH	→	DEUTSCH	GREECE	→	ENGLISH
NORGE	→	NORSK	ITALIA	→	ITALIANO	OTHERS	→	ENGLISH

If you want to change the language setting manually, ☞ "Language" on page 9.

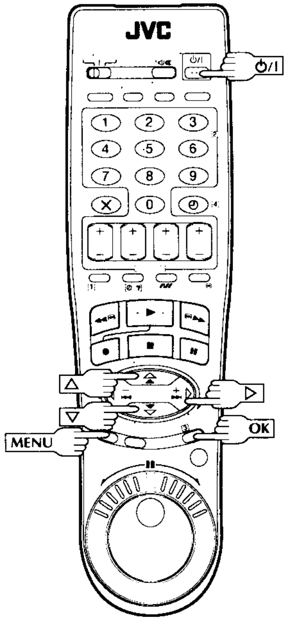
Just Clock

Your recorder is equipped with the Just Clock function which provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal. If you want to take advantage of this function, simply set it to "ON".
☞ "Just Clock" on page 58.

Language

This recorder offers you the choice to view on-screen messages in 10 different languages. Though Auto Set Up selects the language automatically (☞ pg. 8), you can change the language setting manually using this procedure as required.

Turn on the TV and select the VIDEO channel (or AV mode).



1

TURN ON THE RECORDER

Press ⏻/I.

2

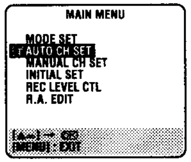
ACCESS MAIN MENU

Press **MENU**.

3

ACCESS COUNTRY SET SCREEN

Press △▽ to move the highlight bar (pointer) to "AUTO CH SET", then press **OK** or ▷.



MAIN MENU
MODE SET
☞ AUTO CH SET
MANUAL CH SET
INITIAL SET
REC LEVEL CTL
R.A. EDIT
[MENU] : EXIT

4

SELECT COUNTRY

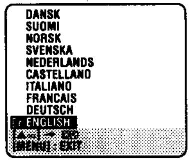
Press △▽ to move the highlight bar (pointer) to your country's name, then press **OK** or ▷.

5

SELECT LANGUAGE

Press △▽ to move the highlight bar (pointer) to the language of your choice.

- You do not have to press **OK**; pressing **OK** starts Auto Channel Set.



DANSK
SUOMI
NORSK
SVENSKA
NEDERLANDS
CASTELLANO
ITALIANO
FRANCAIS
DEUTSCH
☞ ENGLISH
[MENU] : EXIT

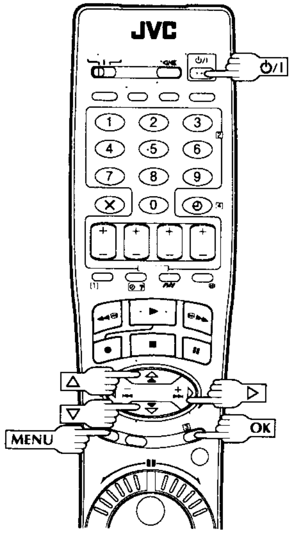
6

RETURN TO NORMAL SCREEN

Press **MENU**.

On-Screen Displays

Turn on the TV and select the VIDEO channel (or AV mode).



NOTES:

- *When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting.*
- *During playback, the operation mode indicators may be disturbed depending on the type of tape being used.*

You can choose whether or not to have various operational indicators appear on screen, by setting this function ON or OFF. Messages appear in the selected language (☞ pg. 8 or 9).

1 TURN ON THE RECORDER

Press ⏻/I.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing △▽, then press **OK** or ▷.

4 ENABLE/DISABLE ON-SCREEN DISPLAY

The default setting is "ON", so if you want on-screen displays, leave the setting as it is and go to step **5**. If you don't want the displays to appear, press △▽ to move the highlight bar (pointer) to "O.S.D." and press **OK** or ▷ to set "O.S.D." to "OFF".

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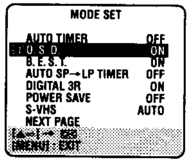
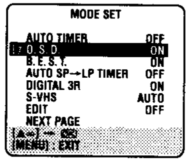


```
            MODE SET

AUTO TIMER                OFF
O.S.D.                     ON
B.E.S.T.                   ON
AUTO SP→LP TIMER          OFF
DIGITAL 3R                 ON
POWER SAVE                OFF
S-VHS                    AUTO
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT
```

HR-S9500EH

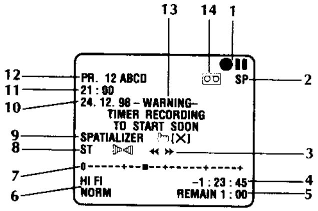


```
            MODE SET

AUTO TIMER                OFF
O.S.D.                     ON
B.E.S.T.                   ON
AUTO SP→LP TIMER          OFF
DIGITAL 3R                 ON
S-VHS                    AUTO
EDIT                      OFF
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT
```

5 RETURN TO NORMAL SCREEN

Press **MENU**.

The superimposed indication on the TV screen tells you what the recorder is doing.

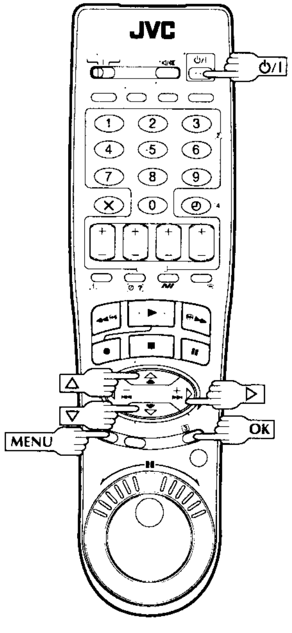


1– Operation mode indicators
2– Tape speed SP/LP/EP (EP is for NTSC playback only)
3– Tape direction
4– Counter display
5– Tape remaining time indicator (☞ pg. 21)
6– Audio mode display (☞ pg. 17)
7– Tape position indicator (☞ pg. 13)
8– Type of Broadcast (☞ pg. 23)
9– Spatializer® indicator (☞ pg. 17)
10– Current day/month/year
11– Clock display
12– Channel position number and station name/Aux. indicator (L-1, L-2, F-1 or S-1)
13– Timer warning display (☞ pg. 27, 29)
14– Cassette loaded mark

Power Save Mode

(HR-S9500E only)

Turn on the TV and select the VIDEO channel (or AV mode).



You can reduce the power consumption while the recorder is turned off.

1 TURN ON THE RECORDER

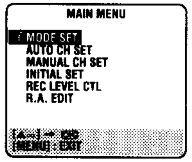
Press ⏻/I.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS MODE SET SCREEN

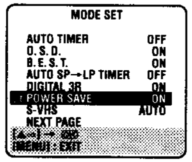
Press △▽ to move the highlight bar (pointer) to "MODE SET", then press **OK** or ▷.



```
        MAIN MENU

MODE SET
AUTO CH SET
MANUAL CH SET
INITIAL SET
REC LEVEL CTL
R.A. EDIT

[▲▼] → OK
[MENU] : EXIT
```

4 SELECT POWER SAVE MODE

Press △▽ to move the highlight bar (pointer) to "POWER SAVE", then press **OK** or ▷ to set to "ON".



```
            MODE SET

AUTO TIMER                OFF
O.S.D.                     ON
B.E.S.T.                   ON
AUTO SP→LP TIMER          OFF
DIGITAL 3R                 ON
POWER SAVE                 ON
S-VHS                    AUTO
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT
```

5 RETURN TO NORMAL SCREEN

Press **MENU**.

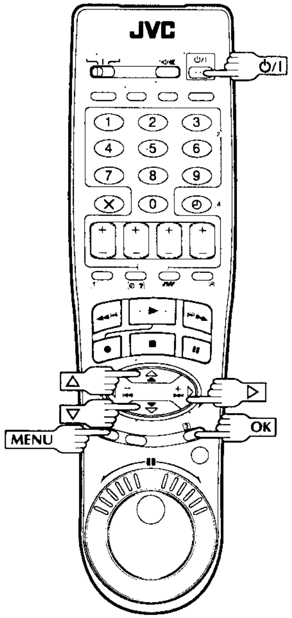
NOTES:

- *During Power Save, the display panel will be turned off.*
- *The Just Clock function (☞ pg. 58) does not work while the Power Save mode is engaged.*
- *While the recorder is in the Power Save mode, the picture may be distorted momentarily when you turn on/off the recorder.*
- *Power Save does not work when ...*
  - *... the recorder is in the Timer mode.*
  - *... the recorder's power is turned off after timer-recording (or Instant Timer Recording).*
  - *... the Auto Satellite Prog Recording mode is engaged (☞ pg. 32).*
  - *... "AV2 SELECT" is set to "DECODER" or "SAT" (☞ pg. 39).*

Colour System Set

You can play back PAL, NTSC and MESECAM tapes, or record PAL and SECAM* signals on this recorder. Follow the procedure below to select the appropriate colour system.

* SECAM signals will be recorded as MESECAM on this recorder; MESECAM is the designation for tapes with SECAM signals that have been recorded on a MESECAM-compatible PAL video cassette recorder.



1 TURN ON THE RECORDER

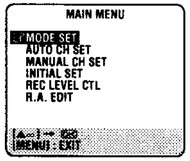
Press ⏻/I.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS MODE SET SCREEN

Press △▽ to move the highlight bar (pointer) to "MODE SET", then press **OK** or ▷.

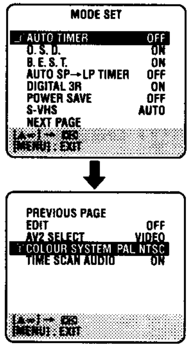


```
MAIN MENU

MODE SET
AUTO CH SET
MANUAL CH SET
INITIAL SET
REC LEVEL CTL
R.A. EDIT

[▲▼] → OK
[MENU] : EXIT
```

4 SELECT COLOUR SYSTEM MODE

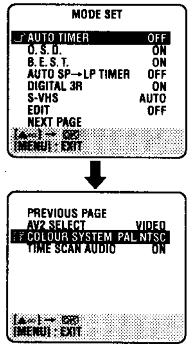
Press △▽ to move the highlight bar (pointer) to "COLOUR SYSTEM", then press **OK** or ▷ to select the appropriate colour system.

HR-S9500E



```
MODE SET

AUTO TIMER          OFF
O.S.D.               ON
B.E.S.T.             ON
AUTO SP→LP TIMER    OFF
DIGITAL 3R           ON
POWER SAVE          OFF
S-VHS              AUTO
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT

PREVIOUS PAGE
EDIT                OFF
AV2 SELECT        VIDEO
COLOUR SYSTEM  PAL NTSC
TIME SCAN AUDIO      ON

[▲▼] → OK
[MENU] : EXIT
```

HR-S9500EH



```
MODE SET

AUTO TIMER          OFF
O.S.D.               ON
B.E.S.T.             ON
AUTO SP→LP TIMER    OFF
DIGITAL 3R           ON
S-VHS              AUTO
EDIT                OFF
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT

PREVIOUS PAGE
AV2 SELECT        VIDEO
COLOUR SYSTEM  PAL NTSC
TIME SCAN AUDIO      ON

[▲▼] → OK
[MENU] : EXIT
```

a- PAL/NTSC: To record PAL signals, or play back a PAL or NTSC tape.
b- MESECAM: To record SECAM signals, or play back a MESECAM tape.

5 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

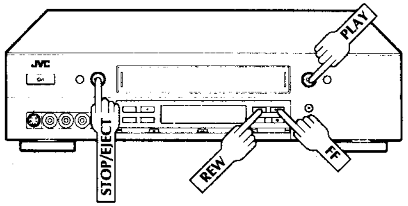
About NTSC Playback

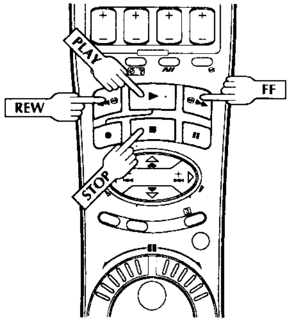
- *Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.*
- *The picture may roll up and down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)*
- *The counter and tape remaining time readings will be incorrect.*
- *During search, still, or frame-by-frame playback, the picture will be distorted, and there may be a loss of colour.*
- *Depending on the type of TV, the top and bottom portions of superimposed displays may be cut off during NTSC playback.*

Basic Playback

The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.

Turn on the TV and select the VIDEO channel (or AV mode).





1 LOAD A CASSETTE

Make sure the window side is up, the rear label side is facing you and the arrow on the front of the cassette is point toward the recorder. Don't apply too much pressure when inserting.

- The recorder power comes on automatically and the counter is reset to 0:00:00.
- If the record safety tab has been removed, playback begins automatically.

2 FIND PROGRAMME START POINT

If the tape is advanced past the start point, press **REW**. To go forward, press **FF** .

3 START PLAYBACK

Press **PLAY**. "BEST" appears blinking in the recorder's display panel during automatic tracking. (☞ pg. 24)

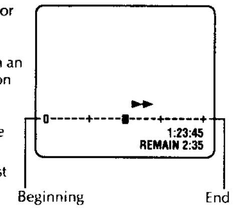
4 STOP PLAYBACK

Press **STOP** on the remote or **STOP/EJECT** on the recorder's front panel. Then press **STOP/EJECT** to remove the cassette.

Tape Position Indicator

The tape position indicator appears on screen when, from the Stop mode, you press **FF**, **REW** or perform an Index Search. The position of "■" in relation to "0" (beginning) or "+" (end) shows you where you are on the tape.

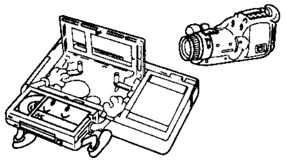
"O.S.D." (☞ pg. 10) must be set to "ON", or the indicator will not appear.



NOTE:

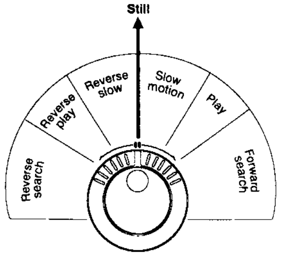
Depending on the type of tape used, there may be times when the indication is not correct.

Usable cassettes



- Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorded cassette into a VHS Cassette Adapter and it can be used just like any full-sized VHS cassette.
- This video recorder can record on regular VHS and Super VHS cassettes. While only VHS signals can be recorded on regular VHS cassettes, both VHS and Super VHS signals can be recorded and played back using Super VHS cassettes.

Playback Features



NOTES:

- *Refer to the* ***SHUTTLE*** *ring illustration above as you read the following procedures.*
- *To use the remote control's* ***JOG*** *dial or* ***SHUTTLE*** *ring, press* ***JOG/SHUTTLE*** *first so that the button lights. Pressing the button again turns off the light.*

Still Picture/Frame-By-Frame Playback

1

PAUSE DURING PLAYBACK

Press **PAUSE.**

- During still picture, the sound from the previous 3 seconds (approx.) will be played back repeatedly (provided there was at least 6 seconds of normal playback prior to engaging the still picture mode).
- "TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard. (☞ pg. 19)

2

ACTIVATE FRAME-BY-FRAME PLAYBACK

Turn the **JOG** dial to the right for forward frame-by-frame playback, or to the left for reverse frame-by-frame playback.

OR

Press **PAUSE**.

OR

Press ◁ or ▷.

To resume normal playback, press **PLAY**.

Slow Motion

1

ACTIVATE SLOW-MOTION PLAYBACK

During playback or still, turn the **SHUTTLE** ring to the right for forward slow motion, or to the left for reverse slow motion (refer to the illustration to the left).

OR

During still picture, press and hold **PAUSE** for 2 seconds, then release. Press and release again to return to still picture.

OR

During still picture, press and hold ◁ or ▷. Release to return to still picture.

To resume normal playback, press **PLAY**.

NOTE:

For Time Jog, see page 19.

High-Speed (Turbo) Search

1

ACTIVATE HIGH-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring all the way to the right for forward high-speed search, or to the left for reverse high-speed search. Releasing **SHUTTLE** resumes still picture playback.

OR

During playback or still, press **FF** for forward high-speed search, or **REW** for reverse high-speed search.

To resume normal playback, press **PLAY**.

NOTE:

For short searches, press and hold ***FF*** *or* ***REW*** *for over 2 seconds during playback or still picture. When released, normal playback resumes.*

ATTENTION

- The operations by the remote control's **JOG** dial/**SHUTTLE** ring do not include TimeScan (☞ pg. 18).
- Picture may not appear during high-speed search with an LP-recorded tape.
- In the high-speed search, still, slow motion or frame by frame playback mode, the picture will be distorted, and there will be a loss of colour.

Variable-Speed Search

1

ACTIVATE VARIABLE-SPEED SEARCH

During playback or still, turn the **SHUTTLE** ring to the right for forward variable-speed search, or to the left for reverse variable-speed search (refer to the illustration on page 14).

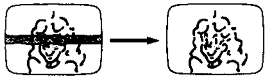
To resume normal playback, press **PLAY**.

NOTE:

Variable-speed search with TimeScan (☞ pg. 18) can be used by pressing the remote control's ◁ or ▷ button.

Manual Tracking

Your video recorder is equipped with automatic tracking control. During playback, you can override this and adjust the tracking manually by pressing the **TV PROG** buttons.



1

OVERRIDE AUTOMATIC TRACKING

Press **////** on the remote to engage manual tracking.

2

ADJUST TRACKING MANUALLY

Press **TV PROG** + or – to adjust tracking.

3

RETURN TO AUTOMATIC TRACKING

Press **////** on the remote to re-engage automatic tracking.

NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Skip Search

1

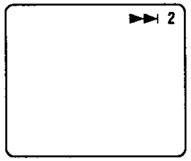
SKIP OVER UNWANTED SECTIONS

Press **30 SEC** 1 to 4 times during playback. Each press initiates a 30-second period of fast-motion playback. Normal playback resumes automatically.

NOTE:

To return to normal playback during a Skip Search, press ***PLAY****.*

Index Search



Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.

NOTE:

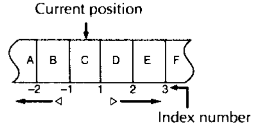
Before starting, make sure the recorder is in the Stop mode.

1

ACTIVATE INDEX SEARCH

Press ◁ or ▷ (I◄◄ or ►►I). "I◄◄ 1" or "►►I 1" is displayed on screen and search begins in the corresponding direction.

- To access index codes 2 through 9, press ◁ or ▷ repeatedly until the correct index number is displayed.
  Ex.: To locate the beginning of B from the current position, press ◁ twice.
  To locate the beginning of D from the current position, press ▷ once.



- When the specified index code is located, playback begins automatically.

Instant ReView

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last timer-recorded programme. If you have several programmes recorded, you can easily access any of them.

NOTE:

Before starting, make sure that the recorder is off and that the Timer mode is disengaged.

1

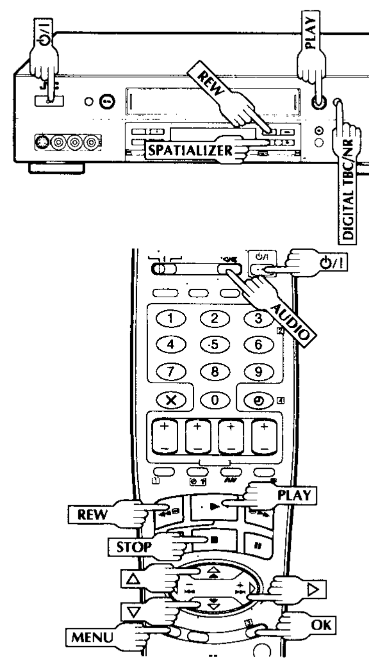
ACTIVATE INSTANT REVIEW

Press **REVIEW**. The recorder power comes on and the recorder searches for the index code indicating the start of the last timer-recorded programme. Once it's found, playback begins automatically.

- The front display panel tells you how many programmes have been timer-recorded. If you have, for example, 3 programmes, "REVIEW" and "3" appear and blink. To watch the first of the 3 programmes, press **REVIEW** three times. The recorder searches and begins playback automatically. You can access a programme as far as 9 index codes away from the current tape position.

NOTES:

- *Instant ReView is not possible while the recorder is in the Timer mode.*
- *The number of recorded programmes will not be displayed on the front display panel after Auto Satellite Prog recording (☞ pg. 32).*



Digital TBC/NR

Your video recorder is equipped with the Digital TBC (Time Base Corrector) that removes jitter from fluctuating video signals to deliver a stable picture even with old tapes and rental cassettes.
The on/off of Digital 3-DNR (Noise Reduction) which cuts noise and enables clear picture reproduction is also linked to this function.
* The default setting is "ON".

We recommend that you use the Digital TBC feature when...
... playing back a tape recorded on a camcorder.
... playing back a tape repeatedly used.
... using this video recorder as the player for editing.

1 ACTIVATE DIGITAL TBC/NR

Press **DIGITAL TBC/NR** so that the button lights up.

- To turn off DIGITAL TBC/NR, press **DIGITAL TBC/NR** again so that the light goes off.

NOTES:

- *If you play back a tape recorded under poor TV reception condition, there may be cases where the picture becomes more stable with Digital TBC/NR set to off.*
- *When Digital TBC/NR is set to on, if you play back a tape where certain types of signals are recorded (using a PC or some character generators), the playback picture may be distorted. If this is the case, turn off Digital TBC/NR.*

Digital 3R

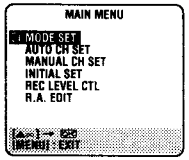
Digital 3R picture system applies edge correction to the luminance signal to enhance detail.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

2 ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing △▽, then press **OK** or ▷ .


MAIN MENU

MODE SET
AUTO CH SET
MANUAL CH SET
INITIAL SET
REC LEVEL CTL
R.A. EDIT

[▲▼] → OK
[MENU] : EXIT

3 SELECT DIGITAL 3R SET MODE

Move the highlight bar (pointer) to "DIGITAL 3R" by pressing △▽, then press **OK** or ▷ to set to "ON".

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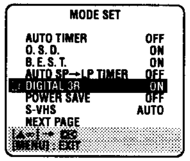
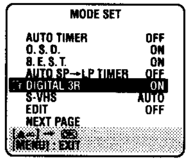

MODE SET

AUTO TIMER	OFF
O. S. D.	ON
B. E. S. T.	ON
AUTO SP→LP TIMER	OFF
DIGITAL 3R	ON
POWER SAVE	OFF
S-VHS	AUTO
NEXT PAGE	

[▲▼] → OK
[MENU] : EXIT

HR-S9500EH


MODE SET

AUTO TIMER	OFF
O. S. D.	ON
B. E. S. T.	ON
AUTO SP→LP TIMER	OFF
DIGITAL 3R	ON
S-VHS	AUTO
EDIT	OFF
NEXT PAGE	

[▲▼] → OK
[MENU] : EXIT

4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

- *Normally it is recommendable to keep "DIGITAL 3R" set to "ON".*
- *Depending on the type of tape being used, picture quality may be better with "DIGITAL 3R" set to "OFF".*

Spatializer®

This feature expands sound field when you play back any stereo source or view a stereo programme while recording it.
*Spatializer® has no effect on recording quality.

1 ACTIVATE SPATIALIZER®

Press **SPATIALIZER**; the current setting will be displayed on the screen for about 5 seconds. Pressing **SPATIALIZER** while the screen shows the display changes the setting.

- To view a stereo programme such as movies or music, select "SPATIALIZER ▷ ◁" to create more spacious sound.
- To view a monaural programme, select "SPATIALIZER→ST" which simulates a stereo effect.
- Select "SPATIALIZER OFF" to turn off Spatializer® if the sound becomes unnatural with either "SPATIALIZER ▷ ◁" or "SPATIALIZER→ST" selected.
- If your TV is equipped with 3D-PHONIC and if you use both Spatializer® and 3D-PHONIC at the same time, the sound may become unnatural; set either function to "OFF".
- The setting will remain effective even though you turn on/off the recorder.

NOTES:

- *Spatializer® is effective only with a stereo TV.*
- *You can change the Spatializer® setting even though "O.S.D." is set to "OFF".*
- *The setting cannot be changed during search, still, frame-by-frame playback or slow motion mode.*
- *When this recorder is used as the player for editing, the recorded audio will correspond to the Spatializer® setting.*

Repeat Playback

Your video recorder can automatically play back the whole tape 50 times repeatedly.

1 START PLAYBACK

Press **PLAY**.

2 ACTIVATE REPEAT PLAYBACK

Press **PLAY** and hold for over 5 seconds, then release.

- The Play indicator (▷) on the display panel blinks slowly.
- The tape plays 50 times automatically, and then stops.

3 STOP PLAYBACK

Press **STOP** at any time to stop playback.

NOTE:

*Pressing **PLAY**, **REW**, **FF** or **PAUSE** also stops Repeat Playback.*

Next Function Memory

You can set your recorder's power to go off automatically after the tape is fully rewound. Before starting, make sure the recorder is in the Stop mode.
For Automatic Power Off After Tape Rewind . . .
. . . press **REW**, then press ⏻/I within 2 seconds.

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HI-FI L, HI-FI R and NORM) and will play back the one you select.

During Playback
Pressing **AUDIO** on the remote control changes the soundtrack being played back as follows:

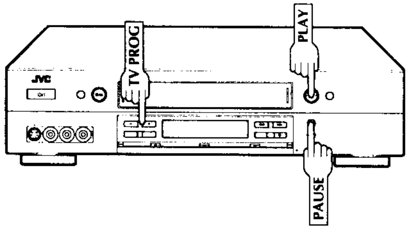
TRACK		USE
Recorder's Front Panel	On-Screen Display	
▷ + ◁	HI FI L ▷ ◁ R	For Hi-Fi stereo tapes
▷	HI FI L ▷	For main audio of Bilingual tapes
◁	HI FI ◁ R	For sub audio of Bilingual tapes
NORM	NORM	For audio-dubbed tapes
▷ + ◁ + NORM	HI FI NORM	For audio-dubbed tapes

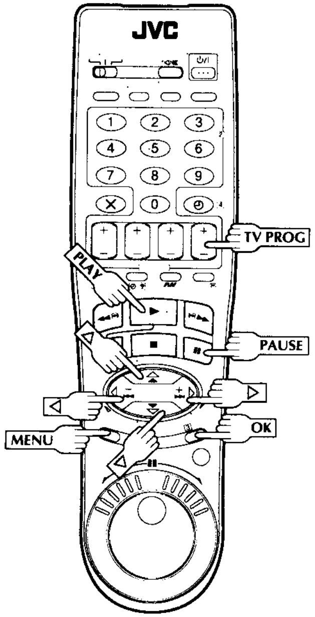
NOTES:

- *"▷ + ◁" should normally be selected. In this mode, Hi-Fi stereo tapes are played back in stereo, and the normal audio track is played back automatically for tapes with only normal audio.*
- *For instructions on recording stereo and bilingual programmes, refer to page 23.*
- *"O.S.D." must be set to "ON" or the on-screen displays will not appear (☞ pg. 10).*

TimeScan

Your recorder is equipped with the TimeScan function. TimeScan allows noise free pictures to be displayed on your TV screen in the forward and reverse search modes. Audio will be played back at normal speed during the TimeScan modes (☞ pg. 19). TimeScan also allows you to view a programme in search mode while listening to the audio.





NOTES:

- *"TIME SCAN AUDIO" must be set to "ON", or the sound will not be heard in TimeScan mode. (☞ pg. 19)*
- *The audio will not synchronize with the video in TimeScan modes.*
- *In Pause mode 3 seconds (approx.) of audio will be played back repeatedly. (☞ pg. 14)*
- *In TimeScan search modes some of the audio information will not be played so that the audio can keep up with the video.*

Audio signal during TimeScan

Playback tape ① ② ③ ④ ⑤

Sound of ①, ③ and ⑤ is heard.
Sound of ② and ④ is not heard.
Output audio signal is normal (monaural) sound.

Variable-Speed Search

1 ACTIVATE VARIABLE-SPEED SEARCH

During playback, press ◁ or ▷.

- The more times you press, the faster the playback picture moves.
- To decrease speed, press the button for the opposite direction.
(Refer to the chart on pg 19 for playback speeds).

To resume normal playback, press **PLAY**.

If the picture jitters vertically during still or variable-speed search with a MESECAM tape:
1 Press **PAUSE**.
2 Press **TV PROG** + or – so that the vibration stops.

TimeScan

Names of special-effects playback	Reverse							Forward							
	Search				Play	Slow-Motion (Time Jog**)	*Still	Slow-Motion (Time Jog**)	Play	Search					
Speed SP	-9x	-7x	-5x	-3x	-1x	-1/2x	0	1/2x	1x	1.5x	2x	3x	5x	7x	9x
Speed LP		-7x		-3x		-1/2x	0	1/2x	1x	1.5x	2x		5x		9x
Audio output	Audio is output.					Audio is not output.	Audio is output.	Audio is output.	Audio is output.						

* Still mode cannot be engaged using the remote control's ◁ or ▷ button. Still mode can be engaged by pressing the **PAUSE** button.
** Smooth slow motion delivering an uninterrupted moving image without distortion.

- The speed is shown during TimeScan in the upper right corner of the TV screen for approx. 5 seconds. (The display may be distorted.)
- To resume normal playback, press **PLAY**.
- Picture and audio may become distorted when the recording speed changes. When this happens, resume normal playback once, and then try using TimeScan again.
- The picture may be noisy or there may be a loss of colour when you change the playback speed. (More noise will appear with LP recordings.)
- Noise may appear or the upper part of the picture may be distorted during still, frame-by-frame playback, 2x search of LP recordings, or depending on the tape being used.
- Picture may appear distorted in comparison to normal playback.
- In TimeScan mode there will be a time lag between the video and the audio and noise may appear in the audio signal.
- TimeScan sound quality will differ in comparison to normal playback.
- When material such as music videos where there is non-stop sound (very few breaks in the soundtrack) are viewed at 2x normal speed, the audio playback may be faster than normal.
- Depending on the type of tape contents, the sound may not be clear during forward slow-motion playback.
- Time Jog cannot be activated by pressing **PAUSE** for longer than 2 seconds.
- When the playback direction is reversed, it takes approximately 6 seconds until sound is heard.
- Picture will be monochrome with an LP-recorded MESECAM tape during TimeScan.
- When playing back an NTSC tape, the speeds differ from those listed above and are not shown on the TV screen.
- TimeScan at -1/2x, 1/2x and 1.5x normal speed are not possible with a MESECAM tape.
- The operations by the remote's **JOG** dial/**SHUTTLE** ring do not include TimeScan; noise will appear on the screen and audio will not be output.

If you don't want to hear TimeScan audio, set "TIME SCAN AUDIO" to "OFF" (See below).

TimeScan Audio

The audio output can be set ON/OFF during TimeScan. Select ON/OFF as required.
* The default setting is "ON".

1 Press **MENU** to access the Main Menu screen.
2 Move the highlight bar (pointer) to "MODE SET" by pressing △▽, then press **OK** or ▷.
3 Move the highlight bar (pointer) to "TIME SCAN AUDIO" by pressing △▽, then press **OK** or ▷ to select "ON" or "OFF".
4 Press **MENU** to return to the normal screen.

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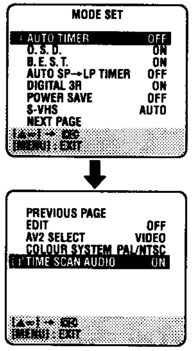
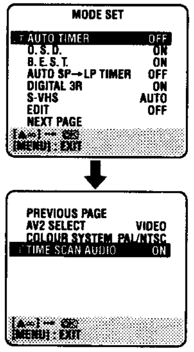


MODE SET
AUTO TIMER OFF
O. S. D. ON
B. E. S. T. ON
AUTO SP→LP TIMER OFF
DIGITAL 3R ON
POWER SAVE OFF
S-VHS AUTO
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT

PREVIOUS PAGE
EDIT OFF
AV2 SELECT VIDEO
COLOUR SYSTEM PAL/NTSC
TIME SCAN AUDIO ON
[▲▼] → OK
[MENU] : EXIT

HR-S9500EH

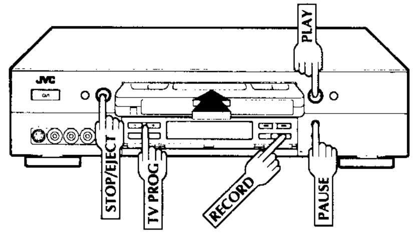


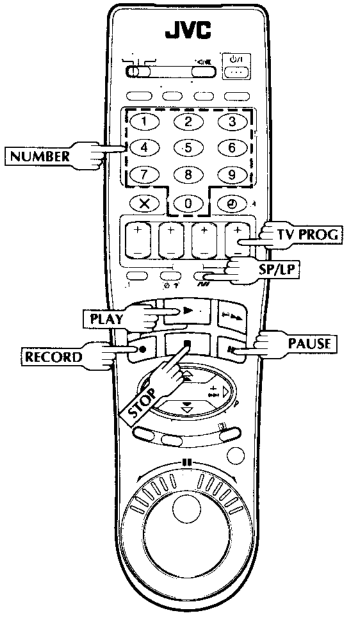
MODE SET
AUTO TIMER OFF
O. S. D. ON
B. E. S. T. ON
AUTO SP→LP TIMER OFF
DIGITAL 3R ON
S-VHS AUTO
EDIT OFF
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT

PREVIOUS PAGE
AV2 SELECT VIDEO
COLOUR SYSTEM PAL/NTSC
TIME SCAN AUDIO ON
[▲▼] → OK
[MENU] : EXIT

Basic Recording

Turn on the TV and select the VIDEO channel (or AV mode).





TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. You can "capture" a TV programme using your video recorder.

1

LOAD A CASSETTE

Insert a cassette with the record safety tab intact.

- The counter is reset to 0:00:00 and the recorder power comes on automatically.

2

CHOOSE A PROGRAMME

Press **TV PROG +/–** or the **NUMBER** keys to select the channel you wish to record.

3

SET TAPE SPEED

Press **SP/LP (////)**. Check the SP/LP indicator on the recorder display panel to confirm the selected tape speed.

4

START RECORDING

Press and hold **RECORD** and press **PLAY** on the remote control, or press **RECORD** on the recorder.

B.E.S.T. takes place at the beginning of both the first SP and the first LP recording after inserting the cassette (☞ pg. 24).

5

PAUSE/RESUME RECORDING

Press **PAUSE**. Press **PLAY** to resume recording.

6

STOP RECORDING

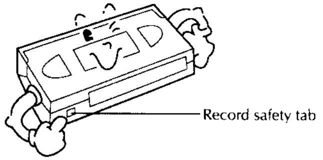
Press **STOP** on the remote control or **STOP/EJECT** on the recorder. Then press **STOP/EJECT** to remove the cassette.

Recording Resume Function

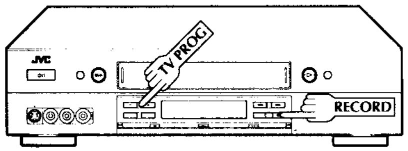
If there is a power outage during recording (or Instant Timer Recording or timer recording), the recording will resume automatically when power is restored to the recorder unless the recorder's memory backup has expired.

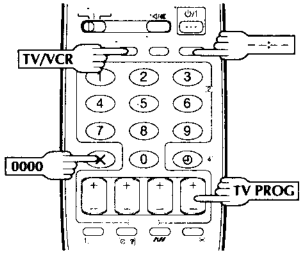
Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Recording Features





Instant Timer Recording (ITR)

This easy method lets you record for from 30 minutes to 6 hours (selectable in 30-min. increments), and shuts the recorder off after recording is finished.

1

START RECORDING

Press **RECORD** on the recorder.

2

ENGAGE ITR MODE

Press **RECORD** again. "◌" blinks and 0:30 appears on the front display panel.

3

SET RECORDING DURATION

If you want to record for more than 30 minutes, press **RECORD** to extend the time. Each press extends recording time by 30 minutes.

NOTE:

*You can only perform ITR using the **RECORD** button on the recorder's front panel.*

Record One Programme While Watching Another

If your recorder is connected to the TV via AV connection, . . .
. . . press **TV/VCR**. The recorder's VCR indicator and the TV broadcast being recorded disappear.

1

SELECT CHANNEL TO WATCH

Once recording is in progress, all you need to do is to set the channel controls on the TV for the station you wish to view.

- The programme selected with the TV's channel controls appears on the TV screen while the one selected with the recorder's **TV PROG** buttons is recorded on the tape.
- If a decoder is connected to the recorder (☞ pg. 47), you can select a scrambled channel as well with the TV channel controls.

Elapsed Recording Time Indication

You can check the exact time of a recording.

1

SET COUNTER DISPLAY

Press – –:– – until a counter reading appears on the dispay panel.

2

RESET COUNTER

Press **0000** before starting recording or playback.

- The counter is reset to "0:00:00" and shows the exact elapsed time as the tape runs.

Tape Remaining Time

1

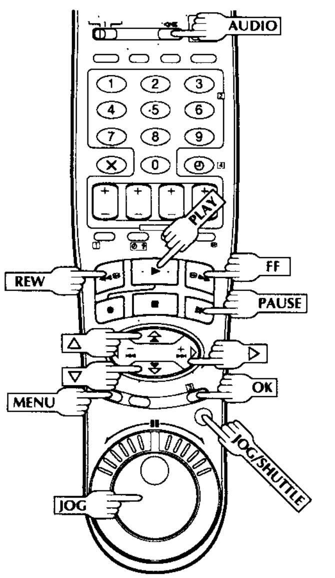
DISPLAY REMAINING TIME

Press – –:– – until the time remaining on the tape appears.

- The display panel shows the tape remaining time with "◣" displayed.
- By pressing the – –:– – button, you can change the display to show the counter reading, channel position*, clock time or tape remaining time.
  ** channel position is not displayed during playback.*

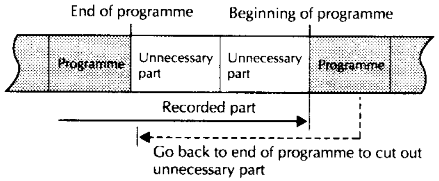
NOTE:

Depending on the type of tape used, there may be times when the tape remaining time reading may not appear right away, or is not correct. "– –:– –" may sometimes appear, or the display may blink on occasion.



Retake

You can cut out unnecessary parts of a TV programme while you're recording it.



1 ENGAGE RECORD-PAUSE MODE

Press **PAUSE** during recording.

2 LOCATE START POINT

First press **JOG/SHUTTLE** and turn the **JOG** dial (or hold down **REW** or **FF**) and release it when you reach the point where you want to resume recording.
* Your recorder returns to the Record-Pause mode.

3 RESUME RECORDING

Press **PLAY** when you wish to resume recording.

S-VHS (Super VHS) and VHS

Your recorder can record in either S-VHS or VHS.

To record in S-VHS:
Perform the steps **1** – **4** below to set "S-VHS" to "AUTO".
Then, insert a cassette marked "S-VHS", the S-VHS indicator will light on the display panel.
The S-VHS recording mode will be selected.

To record in VHS:
Insert a cassette marked "VHS".
The VHS recording mode will be automatically selected regardless of the S-VHS mode setting.

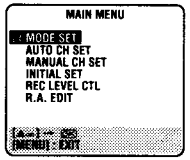
To record in VHS on an S-VHS cassette:
Insert the cassette marked "S-VHS", the S-VHS indicator will light on the display panel.
Then, perform the steps **1** – **4** below to set the "S-VHS" to "OFF"; the S-VHS indicator will go out.
The VHS recording mode will be selected.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

2 ACCESS MODE SET SCREEN

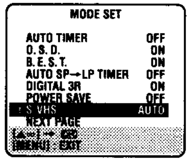
Move the highlight bar (pointer) to "MODE SET" by pressing △▽, then press **OK** or ▷.


MAIN MENU
MODE SET
AUTO CH SET
MANUAL CH SET
INITIAL SET
REC LEVEL CTL
R.A. EDIT

3 SELECT S-VHS MODE

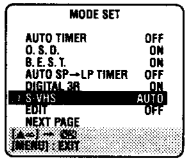
Move the highlight (pointer) to "S-VHS" by pressing △▽, then press **OK** or ▷ to select "AUTO" or "OFF".

HR-S9500E


MODE SET

AUTO TIMER	OFF
O. S. D.	ON
B. E. S. T.	ON
AUTO SP→LP TIMER	OFF
DIGITAL 3R	ON
POWER SAVE	OFF
S-VHS	AUTO
NEXT PAGE	

HR-S9500EH


MODE SET

AUTO TIMER	OFF
O. S. D.	ON
B. E. S. T.	ON
AUTO SP→LP TIMER	OFF
DIGITAL 3R	ON
S-VHS	AUTO
EDIT	OFF
NEXT PAGE	

4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

When playing back a tape that has been recorded in S-VHS, the S-VHS indicator lights on the display panel regardless of the "S-VHS" mode setting.

Hi-Fi Audio Recording Level Control

Your recorder allows manual adjustment of the Hi-Fi audio recording level. Normally the preset audio recording level is satisfactory, but if the sound you are going to record is too loud or too low, adjust the audio recording level while referring to the recorder's audio level meters.

1 ACCESS MAIN MENU SCREEN

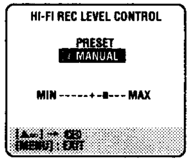
Press **MENU**.

2 ACCESS HI-FI REC LEVEL CONTROL SCREEN

Press △▽ to move the highlight bar (pointer) to "REC LEVEL CTL", then press **OK** or ▷.

3 SELECT MODE

Move the highlight bar (pointer) to "MANUAL" by pressing △▽, then press **OK** or ▷.


HI-FI REC LEVEL CONTROL
PRESET
MANUAL
MIN ------+-■--- MAX

4 ADJUST AUDIO RECORDING LEVEL

Press △ or ▽.

- Press △ or ▽ briefly 5 times to move the on-screen's audio levels by one division on the scale. To move the audio levels faster, keep △ or ▽ pressed.
- Adjust the recording level while watching the recorder's audio level meters. Set the level so that maximum volume causes the meters to vary between 0dB to 4dB.

5 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

Noise will increase if the recording level is too low, while distortion will increase if the level is too high.

Receiving Stereo And Bilingual Programmes

Your recorder is equipped with a Sound-Multiplex decoder (A2) and, if you own the HR-S9500EH, a Digital stereo sound decoder (NICAM) as well, making reception of stereo and bilingual broadcasts possible.

When the channel is changed, the type of broadcast being received will be displayed on the TV screen for a few seconds.

Type of Broadcast Being Received	On-screen Display
A2 Stereo	ST
A2 Bilingual	BIL
Regular Monaural	(none)
*NICAM Stereo	ST NICAM
*NICAM Bilingual	BIL NICAM
*NICAM Monaural	NICAM

*Available with HR-S9500EH only.

- To listen to a stereo programme, press **AUDIO** until "▷" and "◁" appear on the front display panel or "HIFI L ▷ ◁ R" appears on the screen.
- To listen to a bilingual programme, press **AUDIO** until "▷" or "◁" appears on the front display panel, or "HIFI L ▷" or "HIFI ◁ R" appears on the screen (as required).
- To listen to the Standard (regular monaural) audio while receiving a NICAM broadcast, press **AUDIO** until "NORM" appears on the front display panel or on the screen. (HR-S9500EH only)

NOTE:

"O.S.D." must be set to "ON" or the on-screen displays will not appear (☞ pg. 10).

To Record Stereo And Bilingual Programmes (A2)

- Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound).
- Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

To Record NICAM Stereo And Bilingual Programmes (HR-S9500EH only)

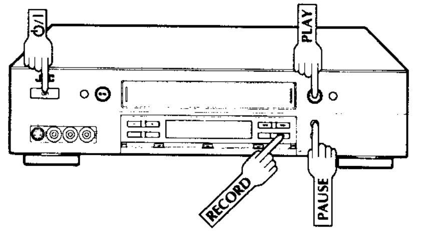
The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.

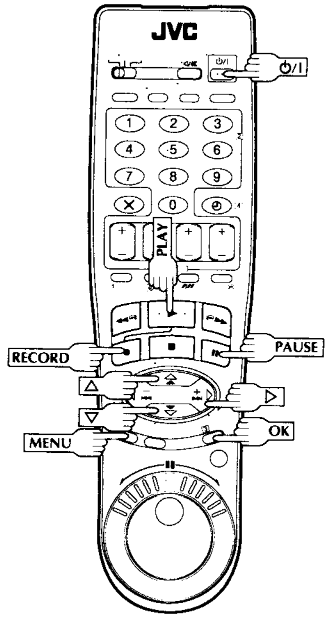
NOTES:

- *If the quality of stereo sound being received is poor, the broadcast will be received in monaural with better quality.*
- *Before playing back a programme recorded in stereo, or a bilingual programme, refer to "Soundtrack Selection" (☞ pg. 17).*

B.E.S.T. Picture System

Turn on the TV and select the VIDEO channel (or AV mode).





The B.E.S.T. (Biconditional Equalised Signal Tracking) system checks the condition of the tape in use during recording and playback, and compensates to provide the highest-possible recording and playback pictures. The default setting for both recording and playback is "ON".

Preparation

1 TURN ON THE RECORDER

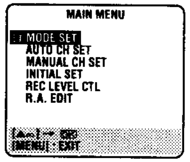
Press ⏻/I.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS MODE SET SCREEN

Press △▽ to move the highlight bar (pointer) to "MODE SET", then press **OK** or ▷.



MAIN MENU

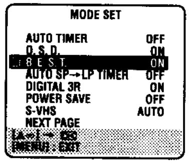
MODE SET
AUTO CH SET
MANUAL CH SET
INITIAL SET
REC LEVEL CTL
R.A. EDIT

[▲▼] → OK
[MENU] : EXIT

4 SELECT B.E.S.T. MODE

Press △▽ to move the highlight bar (pointer) to "B.E.S.T.", then press **OK** or ▷ to set to "ON" or "OFF".

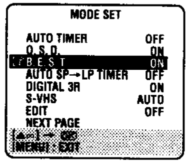
HR-S9500E



MODE SET

AUTO TIMER OFF
O.S.D. ON
B.E.S.T. ON
AUTO SP→LP TIMER OFF
DIGITAL 3R ON
POWER SAVE OFF
S-VHS AUTO
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT

HR-S9500EH



MODE SET

AUTO TIMER OFF
O.S.D. ON
B.E.S.T. ON
AUTO SP→LP TIMER OFF
DIGITAL 3R ON
S-VHS AUTO
EDIT OFF
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT

5 RETURN TO NORMAL SCREEN

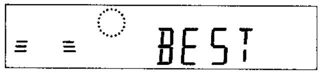
Press **MENU**.

Recording

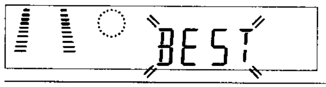
1 START RECORDING

Press and hold **RECORD** and press **PLAY** on the remote, or press **RECORD** on the recorder.

DURING B.E.S.T.



B.E.S.T. COMPLETE



- The recorder spends approximately 7 seconds assessing the condition of the tape, then begins recording.

NOTES:

- *The B.E.S.T. system works for both SP and LP modes only after a tape has been inserted and the Record mode is first initiated. It does not work during recording.*
- *The B.E.S.T. system does not work while Auto Satellite Prog recording is in progress (☞ pg. 32).*
- *In the case of timer recording, the B.E.S.T. system works before recording is initiated.*
- *Once the cassette is ejected, the B.E.S.T. data is cancelled. The next time the cassette is used for recording, B.E.S.T. is re-performed.*
- *Pressing the recorder's **RECORD** button while "BEST" is displayed does not start Instant Timer Recording (☞ pg. 21).*

ATTENTION

*Since the B.E.S.T. system works before recording actually starts, there is a delay of approximately 7 seconds after **RECORD** and **PLAY** on the remote are pressed, or **RECORD** on the recorder is pressed. To make sure you record the desired scene or programme in its entirety, first perform the following steps:*

*1) Press and hold **PAUSE** and press **RECORD** to engage the RECORD PAUSE mode.*
   - *The recorder then automatically checks the condition of the tape and, after approximately 7 seconds, re-enters RECORD PAUSE.*

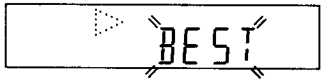
*2) Press **PLAY** to start recording.*
   - *If you want to bypass the B.E.S.T. system and begin recording immediately, set "B.E.S.T." to "OFF" in step **4** on page 24.*

Playback

The recorder assesses the quality of the tape once you initiate playback.

1 START PLAYBACK

Press **PLAY**.



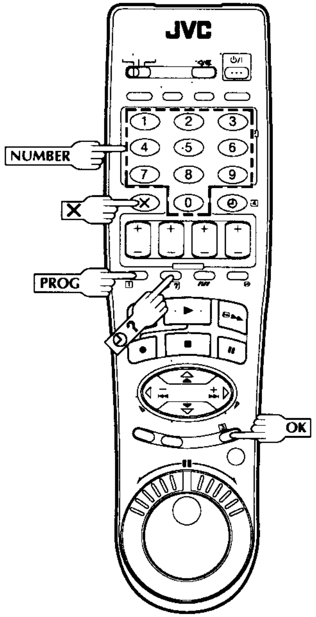
- The recorder adjusts the playback picture quality based on the quality of the tape in use.
- B.E.S.T. is active during Auto Tracking. "BEST" appears blinking on the recorder's display panel.

NOTES:

- *When watching a tape recorded with "B.E.S.T." set to "ON", it is recommended that you leave B.E.S.T. on during playback as well.*
- *When watching a rental tape or one recorded on another video recorder, or when using this recorder as the player for editing, set B.E.S.T. to your preference by performing steps **1** through **5** on page 24.*
- *"BEST" only appears at the beginning of automatic tracking. Even though it doesn't appear after that, the B.E.S.T. function is operative.*

ShowView Timer Programming

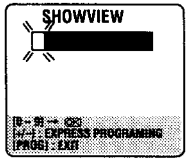
Before performing ShowView Timer Programming:
- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



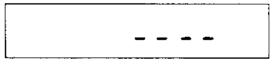
With ShowView, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder is able to recognize.

1 ACCESS SHOWVIEW SCREEN

Press **PROG**.


SHOWVIEW
[0 – 9] → [OK]
[+/–] : EXPRESS PROGRAMING
[PROG] : EXIT

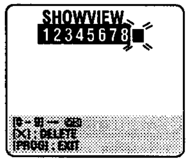
The front display panel looks like this:



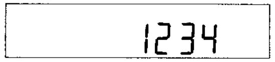
2 ENTER SHOWVIEW NUMBER

Press the **NUMBER** keys to enter the ShowView number of a programme you wish to record.

- If you make a mistake, press X and input the correct number.


SHOWVIEW
12345678
[0 – 9] → [OK]
[X] : DELETE
[PROG] : EXIT

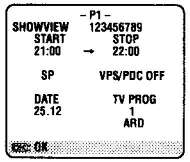
The ShowView number you enter appears on the front display panel:



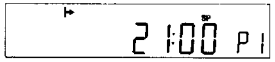
The display panel can show only a 4-digit number.

3 ACCESS SHOWVIEW PROGRAM SCREEN

Press **OK**, and the ShowView Program screen appears (if you're just starting out, "P1" appears).

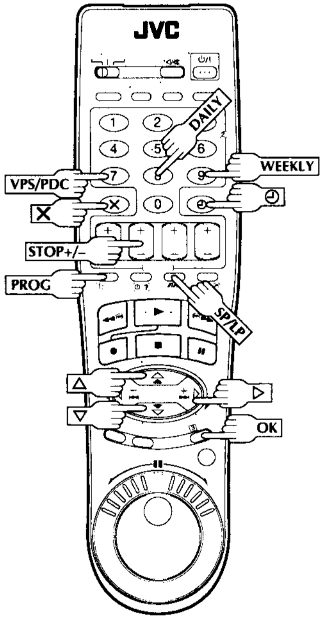

- P1 -
SHOWVIEW 123456789
START 21:00 → STOP 22:00
SP VPS/PDC OFF
DATE 25.12
TV PROG 1 ARD
[OK] : OK

The display panel shows the programme start time. Pressing ⊕ **?** changes the display to the programme stop time, then the date and channel position.



IMPORTANT
Make sure the channel position number you wish to record is displayed; if not, see "ShowView Setup" on page 57 and set the Guide Program number for that ShowView number correctly.

- If the number you entered is invalid, "ERROR" appears on the screen and "Err" appears on the display panel. Press X and input a valid ShowView number.
- If the "GUIDE PROG SET" screen appears, see "ATTENTION – Regarding Guide Program Number Set" on page 27.

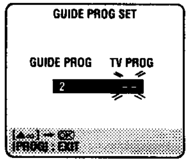


Satellite Tuner Users
To timer-record a satellite broadcast using ShowView:
1. Set "AV2 SELECT" to "SAT" (☞ pg. 39).
2. Perform steps **1** – **7**.
3. Set the satellite tuner to the appropriate channel before the selected programme begins.
4. Leave the satellite tuner's power on.

ATTENTION

Regarding Guide Program Number Set

"GUIDE PROG SET" appears after performing step **3** if the Guide Program number for the ShowView number you entered has not been set.
- Press the **NUMBER** keys or △▽ to input the channel position number on which your recorder receives that station, then press **OK** or ▷. The ShowView program screen appears.


GUIDE PROG SET
GUIDE PROG TV PROG
2 - -
[▲▼] → [OK]
[PROG] : EXIT

(Ex.) To timer-record a ZDF programme with ShowView.
* If your recorder receives ZDF on the channel position 2, press **OK** or ▷ after entering "2".

4 SET TAPE SPEED

Press **SP/LP (⫽⫽)** to set the tape speed.

5 SET VPS/PDC MODE

Press **VPS/PDC** to select "ON" or "OFF".
If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, VPS/PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, VPS/PDC is set to OFF.
☞ "VPS/PDC Recording" on page 29.

6 RETURN TO NORMAL SCREEN

Press **PROG** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps **1** – **6** for each additional programme.

7 ENGAGE RECORDER'S TIMER MODE

Press ⊕. The recorder turns off automatically and ⊕ appears on the display panel.

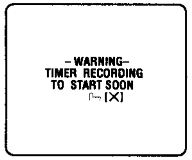
- To disengage the timer, press ⊕ again.

NOTES:

- *To Change The Stop Time . . .*
  *. . . press **STOP +/–** after pressing **OK** in step **3**. You can compensate for anticipated programme schedule delays this way.*
- *To Timer-Record Weekly Or Daily Serials . . .*
  *. . . after pressing **OK** in step **3**, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday – Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.*
- *You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (☞ pg. 30).*
- *It is not possible to timer-record a TV programme with a ShowView number which starts with "0".*

Timer Warning

If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.


- WARNING-
TIMER RECORDING
TO START SOON
[X]

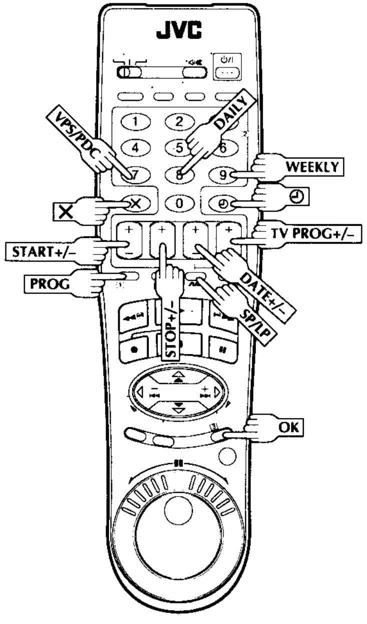
NOTES:

- *The warning only appears if you're not in the Timer mode at that time.*
- *If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.*

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press X.

Express Timer Programming

Before performing Express Timer Programming:
- Make sure that the recorder's built-in clock is set properly.
- Insert a cassette with the safety tab in place. The recorder will come on automatically.
- Turn on the TV and select the VIDEO channel (or AV mode).



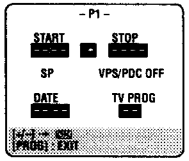
If you don't know the ShowView number for the programme you wish to record, use the following procedure to set your recorder to timer-record the programme.

1 ACCESS SHOWVIEW SCREEN

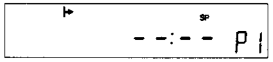
Press **PROG**.

2 ACCESS PROGRAMME SCREEN

Press **START +/–**. (If you're just starting out, "P1" appears.)



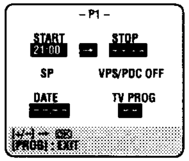
The front display panel looks like this:



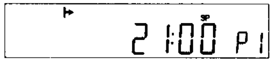
3 ENTER PROGRAMME START TIME

Press **START +/–** to enter the time you want recording to start.

- Press and hold **START +/–** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.



The front display panel looks like this:



4 ENTER PROGRAMME STOP TIME

Press **STOP +/–** to enter the time you want recording to stop.

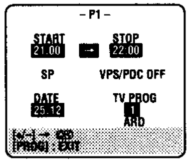
- Press and hold **STOP +/–** to move in 30-minute increments, or press and release repeatedly to move 1 minute at a time.

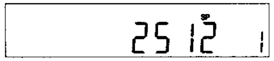
5 ENTER PROGRAMME DATE

Press **DATE +/–**. (The current date appears on screen. The date you enter appears in its place.)

6 ENTER CHANNEL POSITION

Press **TV PROG +/–**.





7 SET TAPE SPEED

Press **SP/LP (////)** to set the tape speed.

8 SET VPS/PDC MODE

Press **VPS/PDC** to select "ON" or "OFF".

If "VPS/PDC ON" is displayed on the screen or "VPS/PDC" is lit on the display panel, VPS/PDC is set to ON. If "VPS/PDC OFF" is displayed on the screen or "VPS/PDC" is not lit on the display panel, VPS/PDC is set to OFF.

☞ "VPS/PDC Recording" in the right column.

9 RETURN TO NORMAL SCREEN

After confirming all information is correct, press **PROG** or **OK**. "PROGRAM COMPLETED" appears on the screen for about 5 seconds, then normal screen appears.

- Repeat steps **1** – **9** for each additional programme.

10 ENGAGE RECORDER'S TIMER MODE

Press ⊕. The recorder turns off automatically and ⊕ appears on the display panel.

- To disengage the timer, press ⊕ again.

To Timer-Record Weekly Or Daily Serials . . .

. . . anytime during steps **2** through **9**, press **WEEKLY** (**NUMBER** key "9") for weekly serials or **DAILY** (**NUMBER** key "8") for daily serials (Monday – Friday). Either "WEEKLY" or "DAILY" appears on the screen. Pressing the button again makes the corresponding indication disappear.

NOTE:

You can programme this recorder to timer-record as many as 8 programmes. If you try to programme the recorder to record a ninth, "PROGRAM FULL" appears on screen and "FULL" appears on the front display panel. To record the extra programme, you must first cancel any unnecessary programmes (☞ pg. 30).

Satellite Tuner Users

To timer-record a satellite broadcast using Express Timer Programming:

1. Set "AV2 SELECT" to "SAT" (☞ pg. 39).
2. Perform steps **1** – **10**. Enter "L-2" for the channel position in step **6**.
3. Set the satellite tuner to the appropriate channel before the selected programme begins.
4. Leave the satellite tuner's power on.

VPS/PDC Recording

Now available from some TV stations, PDC (Programme Delivery Control) and VPS (Video Programme System) are service designed to assure safe, accurate timer recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over the advertised times you may have preset into the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed.

NOTES:

- *When you use Express Timer Programming, set the start time (VPS or PDC time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.*
- *VPS/PDC recording is also possible when a satellite tuner or a cable system is connected to AV2 IN/DECODER on your recorder.*
- *VPS/PDC recording is also possible via the AV1 IN/OUT connector.*

How to check if the station being received transmits a VPS/PDC signal

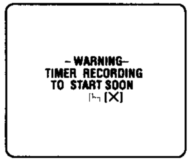
1. Press – –:– – until the channel position appears on the display panel.
2. Hold down **START+** for about 5 seconds.
   - "VPS/PDC" appears blinking on the display panel.

   If a VPS/PDC signal is detected from the station, "VPS/PDC" will stop blinking.

   If no VPS/PDC signal is detected from the station, "VPS/PDC" will blink at a slower rate.
3. Press – –:– – or **START+** again to return to normal display.

Timer Warning

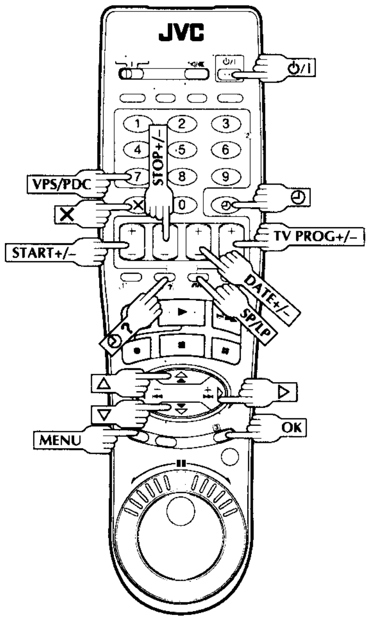
If you have programmed your recorder to timer-record a programme or a series of programmes, a warning appears on screen to tell you that the recording is to start in 5 minutes.



NOTES:

- *The warning only appears if you're not in the Timer mode at that time.*
- *If this recorder is being used as the player for tape dubbing, the warning screen is recorded on the tape in the other video recorder.*

The warning blinks for the entire 5 minutes leading up to the start of timer recording. To clear the display, press **X**.



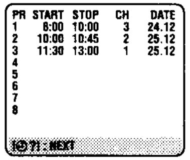
Check, Cancel And Replace Programmes

1 DISENGAGE TIMER MODE

Press ⊕, then press ⏻/I.

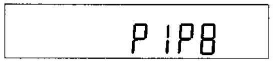
2 ACCESS PROGRAM CHECK SCREEN/DISPLAY

Press ⊕ ?.



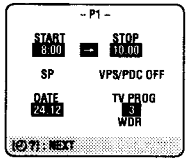
PR	START	STOP	CH	DATE
1	8:00	10:00	3	24.12
2	10:00	10:45	2	25.12
3	11:30	13:00	1	25.12
4				
5				
6				
7				
8				

[⊕ ?] : NEXT



3 ACCESS PROGRAM SCREEN/ DISPLAY

Press ⊕ ? again to check more information. Each time you press ⊕ ?, the next programme's information appears.



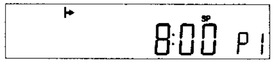
– P1 –

START 8:00 → STOP 10:00

SP VPS/PDC OFF

DATE 24.12 TV PROG 3 WDR

[⊕ ?] : NEXT



- The display panel shows the programme start time. Pressing **OK** changes the display to the programme stop time, then the date and the channel position.

To cancel or replace a programme...

4 CANCEL OR REPLACE A PROGRAMME

Press X to cancel a programme. To replace a programme, press the appropriate button: **START+/–, STOP+/–, DATE+/–, TV PROG+/–, VPS/PDC, SP/LP** (///).

5 RETURN TO NORMAL SCREEN/ DISPLAY

Press ⊕ ? as many times as necessary. If there are still some programmes remaining, go on to step **6**.

6 RETURN TO TIMER MODE

Press ⊕.

NOTE:

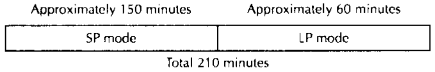
You can also check the programmes on the display panel even if the recorder's power is off (unless the recorder is in the Power Save mode ☞ pg. 11) or the recorder is in the Timer mode; however, it is not possible to cancel or replace the programmes.

Auto SP→LP Timer

If, when timer-recording in SP mode, there is not enough tape to record the entire programme, the recorder automatically switches to LP mode to allow complete recording.

For Example . . .

Recording a programme of 210 minutes in length onto a 180-minute tape



Make sure you set "AUTO SP→LP TIMER" to "ON" at the Mode Set screen before the timer-recording starts.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

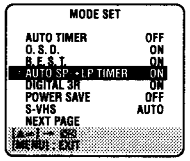
2 ACCESS MODE SET SCREEN

Press △▽ to move the highlight bar (pointer) to "MODE SET", then press **OK** or ▷.

3 SELECT MODE

Press △▽ to move the highlight bar (pointer) to "AUTO SP→LP TIMER", then press **OK** or ▷ to select "ON".

HR-S9500E

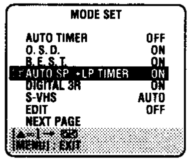


MODE SET

AUTO TIMER	OFF
O.S.D.	ON
B.E.S.T.	ON
AUTO SP→LP TIMER	ON
DIGITAL 3R	ON
POWER SAVE	OFF
S-VHS	AUTO
NEXT PAGE	

[▲▼] → OK
[MENU] : EXIT

HR-S9500EH



MODE SET

AUTO TIMER	OFF
O.S.D.	ON
B.E.S.T.	ON
AUTO SP→LP TIMER	ON
DIGITAL 3R	ON
S-VHS	AUTO
EDIT	OFF
NEXT PAGE	

[▲▼] → OK
[MENU] : EXIT

4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTES:

- *If you have programmed the recorder to timer-record 2 or more programmes, the second programme and those thereafter may not fit on the tape if you set "AUTO SP→LP TIMER" to "ON". In this case, make sure the mode is not engaged, then set the tape speed manually during timer programming.*
- *In order to ensure that the recording fits on the tape, this feature may leave a slight non-recorded section at the end of the tape.*
- *There may be some noise and sound disturbance at the point on the tape where the recorder switches from SP to LP mode.*
- *The Auto SP→LP Timer feature is not available during ITR (Instant Timer Recording), and the feature will not work properly with any tapes longer than E-180 or with some tapes of shorter lengths.*
- *If you perform timer recording with both VPS/PDC and the Auto SP→LP Timer activated, and the programme goes beyond its originally scheduled length, there may be times when the programme cannot be recorded in its entirety.*

Auto Timer

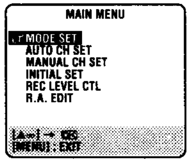
When the Auto Timer is set to ON the timer is automatically engaged when the recorder power is turned off and automatically disengaged when the recorder is powered back on.

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

2 ACCESS MODE SET SCREEN

Press △▽ to move the highlight bar (pointer) to "MODE SET", then press **OK** or ▷.



MAIN MENU

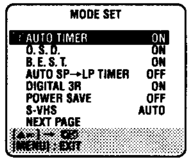
MODE SET
AUTO CH SET
MANUAL CH SET
INITIAL SET
REC LEVEL CTL
R.A. EDIT

[▲▼] → OK
[MENU] : EXIT

3 SELECT MODE

Press **OK** or ▷ to select either "ON" or "OFF".

HR-S9500E

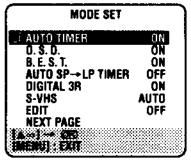


MODE SET

AUTO TIMER	ON
O.S.D.	ON
B.E.S.T.	ON
AUTO SP→LP TIMER	OFF
DIGITAL 3R	ON
POWER SAVE	OFF
S-VHS	AUTO
NEXT PAGE	

[▲▼] → OK
[MENU] : EXIT

HR-S9500EH



MODE SET

AUTO TIMER	ON
O.S.D.	ON
B.E.S.T.	ON
AUTO SP→LP TIMER	OFF
DIGITAL 3R	ON
S-VHS	AUTO
EDIT	OFF
NEXT PAGE	

[▲▼] → OK
[MENU] : EXIT

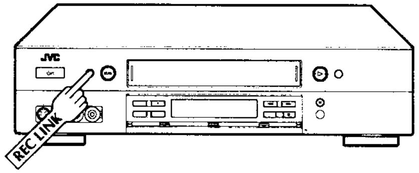
4 RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

For safety, when Auto timer is set to "OFF", all other recorder functions are disabled while the Timer mode is engaged. To disengage the timer, press ⊕.

Automatic Satellite Programme Recording



This facility allows you record automatically a satellite programme which is timer-programmed on your external satellite tuner. Connect a satellite tuner to the recorder's AV2 IN/DECODER connector and programme the timer on the satellite tuner; the recorder starts recording when the signals input from the satellite tuner to the AV2 IN/DECODER connector, and when there is no input signals the recorder stops recording and the power shuts off.

Before performing the following steps:
- Make sure the satellite tuner is connected to the recorder's AV2 IN/DECODER connector. (☞ pg. 46)
- Programme the timer on the satellite tuner.
- Insert a cassette with the safety tab in place.

1 SELECT AV2 SELECT MODE

Set "AV2 SELECT" to "SAT" (☞ pg. 39).

2 SET TAPE SPEED

Press **SP/LP** (////) to set the tape speed.

3 ENGAGE AUTO SATELLITE PROG REC MODE

Press and hold **REC LINK** for about 2 seconds. The button lights up and the recorder turns off automatically.

- To disengage the Auto Satellite Prog Rec mode, press **REC LINK**. The button's light goes off.
- If the recorder's power is off, it is not possible to engage the Auto Satellite Prog Rec mode.

ATTENTION

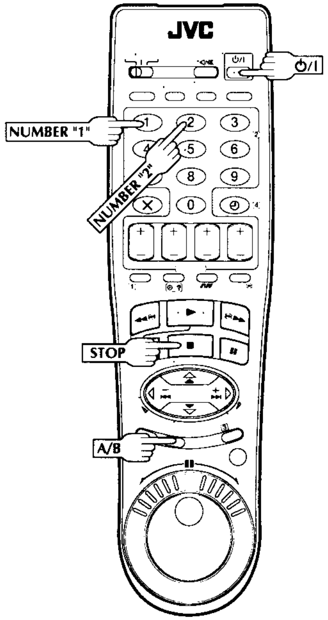
- Be sure not to turn on the satellite tuner before the programme is executed; otherwise, the recorder will start recording when the satellite tuner's power is turned on.
- If you have connected another appliance other than a satellite tuner to the AV2 IN/DECODER connector, be sure not to engage the Auto Satellite Prog Rec mode; otherwise, the recorder will start recording when the connected appliance's power is turned on.
- Auto Satellite Prog recording and timer-recording cannot be done at the same time.

NOTES:

- *Auto Satellite Prog recording is possible with the AV2 IN/DECODER connector only.*
- *For timer programming of the satellite tuner, refer to the instruction manual of the satellite tuner.*
- *Auto Satellite Prog recording is not possible if your satellite tuner does not have a timer.*
- *The button's light blinks while Auto Satellite Prog recording is in progress.*
- *Pressing the recorder's ⏻/I button while Auto Satellite Prog recording is in progress turns off the recorder's power and disengage the Auto Satellite Prog Rec mode.*
- *If there are more than one satellite programme you wish to record with Auto Satellite Prog Recording, it is not possible to set the different tape speed per each; the tape speed selected in step* **2** *will be applicable to all the programmes for Auto Satellite Prog recording.*
- *The B.E.S.T. system (☞ pg. 24) does not work while Auto Satellite Prog recording is in progress.*
- *Just Clock (☞ pg. 58) does not work when the Auto Satellite Prog Rec mode is engaged.*
- *Depending on the type of satellite tuner, the recorder may not record a slight portion of the beginning of the programme or may record slightly longer than the actual length of the programme.*
- *If you engage the Auto Satellite Prog Recording mode when the satellite tuner's power is on, the recorder will not start Auto Satellite Prog recording even though the button's light blinks. When the satellite tuner shuts off once and is turned back on again, the recorder starts recording.*
- *When the Auto Satellite Prog Rec mode is engaged or the recorder's power is turned off after Auto Satellite Prog recording is finished, the recorder will not enter the Timer mode even though "AUTO TIMER" is set to "ON".*
- *After Auto Satellite Prog recording, the number of recorded programmes will not be displayed on the front display panel for the Instant ReView function (☞ pg. 15).*
- *You can also record a programme from your cable system in the same way if the system has a timer.*
- *When you press and hold the recorder's* ***REC LINK*** *button to engage the Auto Satellite Prog Rec mode, if the* ***REC LINK*** *button does not light but instead blinks quickly even though your satellite tuner's power is off, Auto Satellite Prog Recording will not work properly with that satellite tuner*.*
  If this is the case, perform "Express Timer Programming" (☞ pg. 28) to timer-record a satellite programme.

** Some satellite tuners output signals even if the power is off. Auto Satellite Prog Recording is not possible with those satellite tuners.*

Remote Control Functions



Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to the remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1 REMOVE POWER SUPPLY

Unplug the mains power cord from the mains outlet.

2 SET REMOTE CONTROL CODE

While holding down **A/B** on the remote control, press the **NUMBER** key "2" and then press **STOP**.

3 RE-SUPPLY POWER

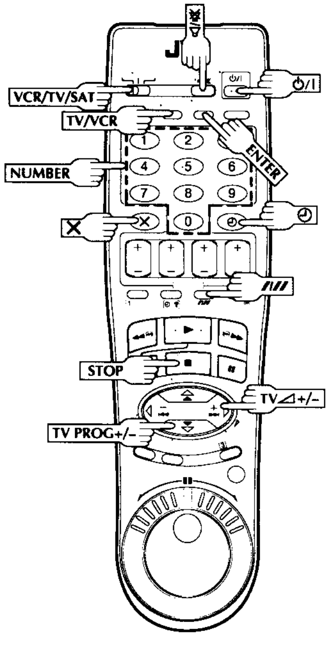
Plug the mains power cord back into the mains outlet.

4 TURN THE RECORDER ON

Press ⏻/I on the remote control. The recorder will now only respond to B code signals.

NOTE:

To set the recorder back to respond to A code signals, repeat the same procedure as shown above except pressing ***NUMBER*** *key "1" instead of "2" in step* **2***.*



TV Multi-brand Remote Control

Your remote control can operate the basic functions of your TV set. In addition to JVC TVs, other manufacturer's TVs can also be controlled.

Before you start . . .
- Turn on the TV using its remote control.
- Set the remote control's **VCR/TV/SAT** switch to TV.

1 SET TV BRAND CODE

Refer to the chart below. While holding down ⏻/I on the recorder's remote control, enter your TV's brand code using the **NUMBER** keys, then press **STOP**. Check if the TV's power goes off as it should. If it does, try other operations (☞ step **2**).

- Once you have set the remote control to operate the TV, you don't have to repeat this step until you replace your remote control's battteries.
- JVC or SAMSUNG has more than one code. If the TV does not function with one code, try entering another.

2 OPERATE TV

Press the corresponding button: ⏻/I, **TV PROG +/–**, **TV/VCR**, **TV ◿ +/–** (Volume), **🔇** (Muting), **NUMBER** keys.

- For some brands of TV, you must press **ENTER** after having pressed the **NUMBER** keys.
- To return the remote to video recorder control, set its **VCR/TV/SAT** switch to VCR.

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many other models, it may not work with your TV, or in some instances, may have limited function capability.

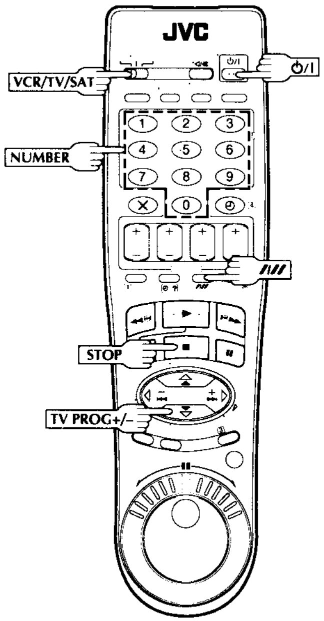
Control Your TV Using Additional Buttons

Use the **NUMBER** keys, and the **///** button, ✕ button or ⊕ button to select the TV's channel.
- With televisions under Code 01, 02, 07, 10, 11, 14, 20, 23, 24, 25, 27, 33 or 35, the **///** button corresponds to the 1-digit/2-digit entry switching button (often labelled –/– –) of your TV's remote control.
- With televisions under Code 01, 28, 29 or 34, the ✕ button corresponds to the 10 + button, and the ⊕ button corresponds to the 20 + button of your TV's remote control.

NOTE:

The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

TV BRAND NAME	CODE
JVC	01, 23, 24, 25
BLAUPUNKT	19
BRANDT	26
FERGUSON	27
FINLUX	30
FUNAI	32
LG/GOLDSTAR	18
GRAETZ	28
GRUNDIG	19
HITACHI	10
ITT	28
LUXOR	28
MITSUBISHI	03
MIVAR	29
NEC	20
NOKIA	31
NORDMENDE	26
PANASONIC	11
PHILIPS	02
SABA	26
SALORA	28
SAMSUNG	02, 12, 33, 34, 35
SELECO	28
SHARP	06
SONY	07
TELEAVIA	26
TELEFUNKEN	26
THOMSON	26
TOSHIBA	14



Satellite Tuner Multi-Brand Remote Control

Your remote control can operate the basic functions of your satellite tuner set. In addition to JVC satellite tuners, other manufacturer's satellite tuners can also be controlled.

Before you start . . .
- Turn on the satellite tuner using its remote control.
- Set the remote control's **VCR/TV/SAT** switch to SAT.

1 SET SATELLITE RECEIVER BRAND CODE

Refer to the chart below. While holding down ⏻/I on the recorder's remote control, enter your satellite tuner's brand code using the **NUMBER** keys, then press **STOP**. Check if the satellite tuner's power goes off as it should. If it does, try other operations (☞ step **2**).

- Once you have set the remote control to operate the satellite tuner, you don't have to repeat this step until you replace your remote control's battteries.
- Some satellite tuner brands have more than one code. If the satellite tuner does not function with one code, try entering another.

2 OPERATE SATELLITE TUNER

Press the corresponding button: ⏻/I, **TV PROG +/–**, **NUMBER** keys.

- For VIDEOWAY or some brands of satellite tuner, you must press **///** after having pressed the **NUMBER** keys.
- The **NUMBER** buttons may not function with some satellite tuners.
- To return the remote to video recorder control, set its **VCR/TV/SAT** switch to VCR.

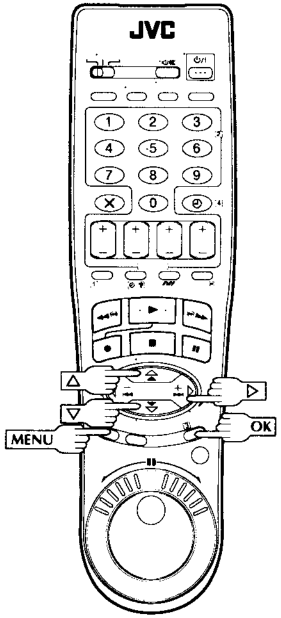
IMPORTANT

Although the provided remote control unit is compatible with JVC satellite tuners, as well as many other models, it may not work with your satellite tuner, or in some instances, may have limited function capability.

SATELLITE TUNER BRAND	CODE
JVC	72, 73
AMSTRAD	60, 61, 62, 63
BT	72
CANAL +	81
FINLUX	68
GRUNDIG	64, 65
HIRSCHMANN	64
ITT	68
JERROLD	75
KATHREIN	70, 71
LUXOR	68
MASPRO	70
NOKIA	68
PACE	65, 67
PANASONIC	74
PHILIPS	66
RFT	69
SALORA	68
SIEMENS	64
SKYMASTER	69
VIDEOWAY	76
WISI	64

Preparation For Editing

Turn on the TV and select the VIDEO channel (or AV mode).



Advantages Of S-VHS Video Recorders

You can edit from VHS to S-VHS, S-VHS to VHS, or, from S-VHS to S-VHS.

- From VHS to S-VHS: Record VHS playback signals in the S-VHS mode. Although the picture quality is inherently limited by that of the original, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to VHS: Because the picture quality of the source material is very high, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to S-VHS: All signals will be transferred with minimum degradation.

Editing Mode Setting

You can minimize picture degradation while editing.

1

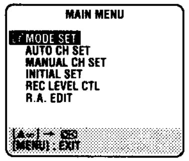
ACCESS MAIN MENU SCREEN

Press **MENU**.

2

ACCESS MODE SET SCREEN

Move the highlight bar (pointer) to "MODE SET" by pressing △▽, then press **OK** or ▷.



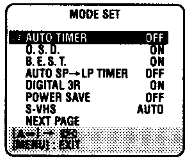
```
        MAIN MENU

  MODE SET
  AUTO CH SET
  MANUAL CH SET
  INITIAL SET
  REC LEVEL CTL
  R.A. EDIT

[MENU] : EXIT
```

3

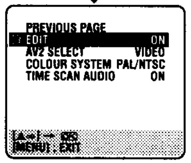
SELECT EDIT MODE

Move the highlight (pointer) to "EDIT" by pressing △▽, then press **OK** or ▷ to select "ON".

HR-S9500E

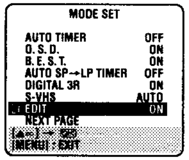


```
        MODE SET

  AUTO TIMER           OFF
  O. S. D.              ON
  B. E. S. T.           ON
  AUTO SP→LP TIMER     OFF
  DIGITAL 3R            ON
  POWER SAVE           OFF
  S-VHS               AUTO
  NEXT PAGE
[MENU] : EXIT
```



```
  PREVIOUS PAGE
  EDIT                  ON
  AV2 SELECT         VIDEO
  COLOUR SYSTEM   PAL/NTSC
  TIME SCAN AUDIO       ON

[MENU] : EXIT
```

HR-S9500EH



```
        MODE SET

  AUTO TIMER           OFF
  O. S. D.              ON
  B. E. S. T.           ON
  AUTO SP→LP TIMER     OFF
  DIGITAL 3R            ON
  S-VHS               AUTO
  EDIT                  ON
  NEXT PAGE
[MENU] : EXIT
```

4

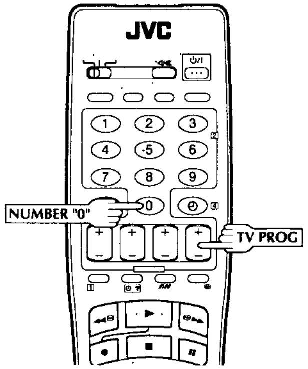
RETURN TO NORMAL SCREEN

Press **MENU**.

NOTE:

After you finish editing, be sure to set "EDIT" back to "OFF".

Edit From A Camcorder


JVC
NUMBER "0"
TV PROG

NOTES:

- *All necessary cables can be obtained from your dealer.*
- *You can also use another video recorder as the player instead of a camcorder.*

You can use a camcorder as the source player and your video recorder as the recorder.

1

MAKE CONNECTIONS

A *If the camcorder has no S-VIDEO output connector...*
... connect the camcorder's AUDIO/VIDEO OUT connectors to the recorder's front panel AUDIO/VIDEO input connectors.

B *If the camcorder has an S-VIDEO output connector...*
... connect the camcorder's S-VIDEO OUT and AUDIO OUT connectors to the recorder's front panel S-VIDEO and AUDIO input connectors.

- When using a monaural camcorder, connect its AUDIO OUT connector to the AUDIO L input connector on your recorder.
- When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling the recorder. Refer to the camcorder's instruction manual for operating procedure.

2

SET RECORDER'S INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG** to select "F-1" for the AUDIO/VIDEO input connectors, or "S-1" for the AUDIO/S-VIDEO input connectors, depending on the connectors being used.

3

SET EDIT MODE

See "Editing Mode Setting" on page 36.

4

START CAMCORDER

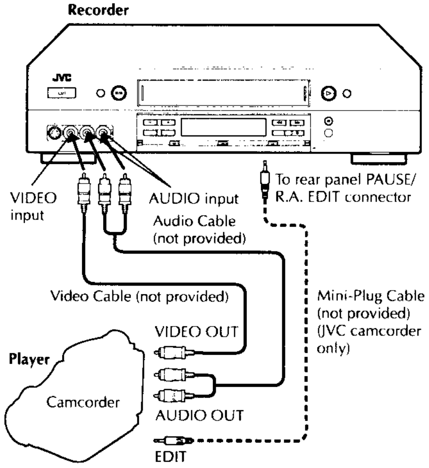
Engage its Play mode.

5

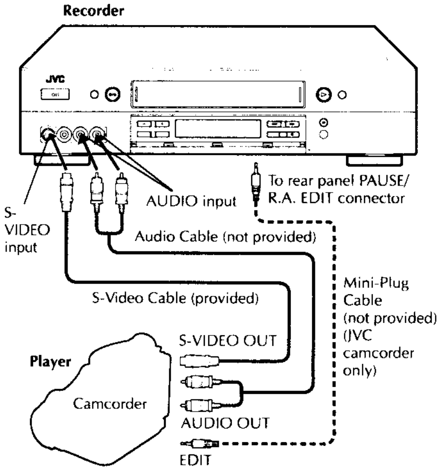
START RECORDER

Engage its Record mode.

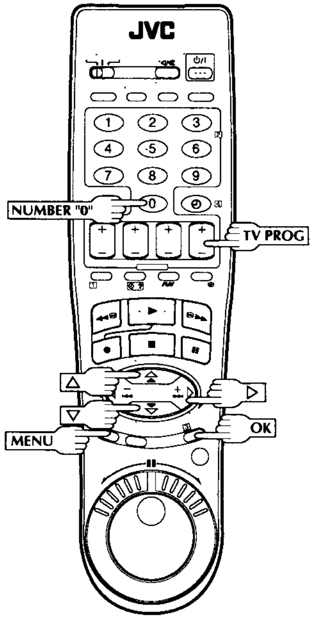
A **If the camcorder has no S-VIDEO output connector...**


Recorder
JVC
VIDEO input
AUDIO input
Audio Cable (not provided)
To rear panel PAUSE/ R.A. EDIT connector
Video Cable (not provided)
Mini-Plug Cable (not provided) (JVC camcorder only)
VIDEO OUT
Player
Camcorder
AUDIO OUT
EDIT

B **If the camcorder has an S-VIDEO output connector...**


Recorder
JVC
S-VIDEO input
AUDIO input
To rear panel PAUSE/ R.A. EDIT connector
Audio Cable (not provided)
S-Video Cable (provided)
Mini-Plug Cable (not provided) (JVC camcorder only)
S-VIDEO OUT
Player
Camcorder
AUDIO OUT
EDIT

Edit To Or From Another Video Recorder



You can use your video recorder as the source player or as the recording deck.

1 MAKE CONNECTIONS

Connect the player's 21-pin SCART connector to the recorder's 21-pin SCART connector as illustrated on page 39.

A *When Using Your Video Recorder As The Source Player ...*
... connect its AV1 IN/OUT connector to the recording deck.

B *When Using Your Video Recorder As The Recording Deck ...*
... connect its AV2 IN/DECODER or AV1 IN/OUT connector to the source player.

2 SET RECORDING DECK'S INPUT MODE

Set to AUX. With this video recorder, press **NUMBER** key "0" and/or **TV PROG** to select "L-1" for the AV1 IN/OUT connector, or "L-2" for the AV2 IN/DECODER connector, depending on the connector being used.

- When using the AV2 IN/DECODER connector, make sure "AV2 SELECT" is set to "VIDEO" or "S-VIDEO" (☞ pg. 39).

3 SET EDIT MODE

See "Editing Mode Setting" on page 36.

4 START SOURCE PLAYER

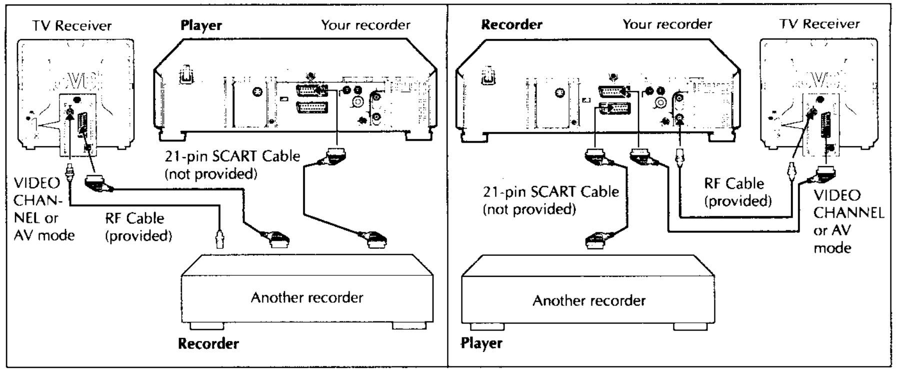
Engage its Play mode.

5 START RECORDING DECK

Engage its Record mode.

NOTES:

- *All necessary cables can be obtained from your dealer.*
- *When you use this recorder as the player for editing, be sure to set "O.S.D." to "OFF" before starting (☞ pg. 10).*
- *If you are using another recorder with S-Video and Audio input/output connectors, you can connect those connectors to this recorder's S-VIDEO IN/S OUT and AUDIO IN/OUT connectors.*
  When Using Your Video Recorder As The Source Player ...
  ... connect its rear panel S OUT and AUDIO OUT connectors to the recording deck's S-Video and Audio input connectors.
  When Using Your Video Recorder As The Recording Deck ...
  ... connect its front panel S-VIDEO and AUDIO input connectors to the source player's S-Video and Audio output connectors. Then, set the recorder's input mode to "S-1".



AV2 SELECT Setting

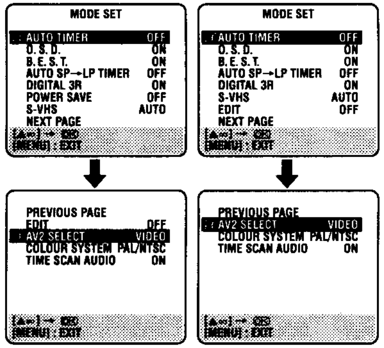
Set "AV2 SELECT" to the appropriate mode depending on the type of unit connected to the rear panel AV2 IN/DECODER connector of this recorder.

1. Press **MENU** to access the Main Menu screen.
2. Press △▽ to move the highlight bar (pointer) to "MODE SET", then press **OK** or ▷.
3. Press △▽ to move the highlight bar (pointer) to "AV2 SELECT".
4. Press **OK** or ▷ to select one of the following:

a–VIDEO	: If a connected device's output is compatible only with regular video signals, set "AV2 SELECT" to "VIDEO".
b–S-VIDEO	: If a connected device's output is compatible with Y/C signals, set "AV2 SELECT" to "S-VIDEO". This setting will let you take advantage of higher-quality S-VHS pictures.
c–DECODER	: If a decoder is connected to the AV2 IN/DECODER connector, set "AV2 SELECT" to "DECODER". (See page 47 as well.)
d–SAT	: If a satellite tuner is connected to the AV2 IN/DECODER connector, set "AV2 SELECT" to "SAT". (See page 46 as well.)

5. Press **MENU** to return to normal screen.

HR-S9500E **HR-S9500EH**



HR-S9500E

```
MODE SET

AUTO TIMER          OFF
O. S. D.             ON
B. E. S. T.          ON
AUTO SP→LP TIMER    OFF
DIGITAL 3R           ON
POWER SAVE          OFF
S-VHS              AUTO
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT
```

```
PREVIOUS PAGE
EDIT                OFF
AV2 SELECT        VIDEO
COLOUR SYSTEM  PAL/NTSC
TIME SCAN AUDIO      ON

[▲▼] → OK
[MENU] : EXIT
```

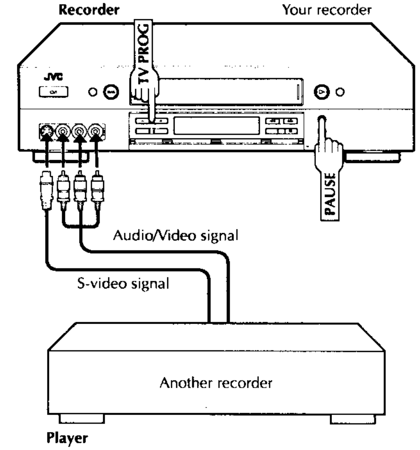
HR-S9500EH

```
MODE SET

AUTO TIMER          OFF
O. S. D.             ON
B. E. S. T.          ON
AUTO SP→LP TIMER    OFF
DIGITAL 3R           ON
S-VHS              AUTO
EDIT                OFF
NEXT PAGE
[▲▼] → OK
[MENU] : EXIT
```

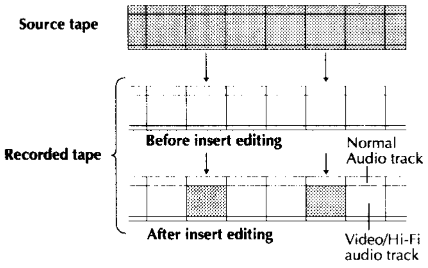
```
PREVIOUS PAGE
AV2 SELECT        VIDEO
COLOUR SYSTEM  PAL/NTSC
TIME SCAN AUDIO      ON

[▲▼] → OK
[MENU] : EXIT
```

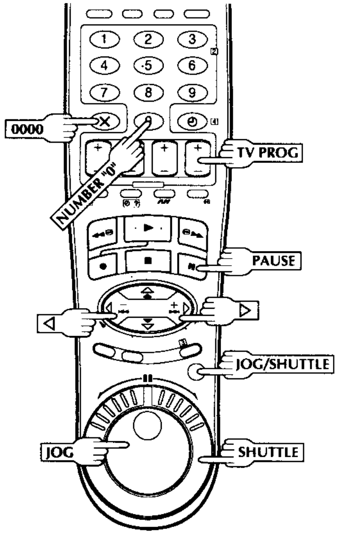
- If you are using a decoder or satellite tuner, be sure to set "AV2 SELECT" back to "DECODER" or "SAT" after editing.
- If you're not using a decoder or satellite tuner, leave "AV2 SELECT" set to "VIDEO" or "S-VIDEO".
- The default setting is "VIDEO"; if the recorder's memory backup has expired due to a power cut or because the AC was removed from the recorder, "VIDEO" will be automatically selected when the power is restored to the recorder. If you are using a decoder or satellite tuner, be sure to set "AV2 SELECT" back to "DECODER" or "SAT".

Insert Editing



Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. If you wish to change the normal audio track as well, use the audio dubbing function simultaneously. Use your video recorder as the recorder.





1 MAKE CONNECTIONS

Connect the player's VIDEO OUT or S-VIDEO OUT and AUDIO OUT connectors to your recorder's VIDEO or S-VIDEO and AUDIO connectors on the front panel.

2 SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG** so that "F-1" for the VIDEO/AUDIO connectors or "S-1" for S-VIDEO/AUDIO connectors appears in place of a channel number.

3 LOCATE END POINT

Load the recording cassette into your recorder, and play it back to determine the edit-out point (the end of the segment to be replaced) using the **SHUTTLE** ring or the **JOG** dial or pressing ◁ ▷ and **PAUSE**.

- To use the **JOG** dial/**SHUTTLE** ring, first press the **JOG/SHUTTLE** button on the remote control so that the button lights up.

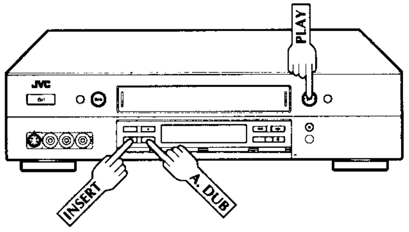
4 RESET THE COUNTER

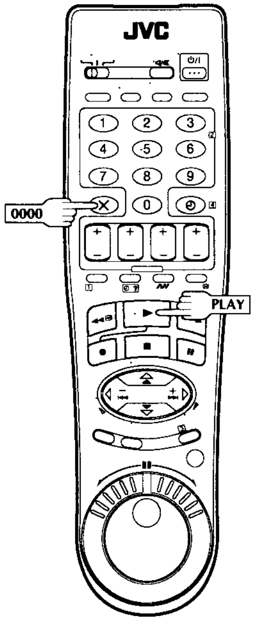
Press **0000** to change the counter display to "0:00:00".

5 LOCATE START POINT

Determine the edit-in point (the beginning of the segment to be replaced) using the **SHUTTLE** ring or the **JOG** dial or pressing ◁ ▷ and **PAUSE**.

- Be sure to engage the Still mode at the edit-in point.





6 ENGAGE INSERT EDITING

Press **INSERT**.

- Your recorder enters the Insert-Pause mode. ("◯", "▷" and "▦" light up on the front display panel.)
- The TV screen changes from the still picture to the input source you are going to record.

7 START EDITING

Load the source cassette and play back the segment that is to be inserted. When you reach the start of the section of the source tape that you wish to insert, press **PLAY** to start the tape in your recorder; Insert Editing begins at this point.

- "◯" and "▷" are displayed on the front display panel.

8 END INSERT EDITING

At counter "0:00:00", Insert Editing will stop automatically while the tape continues running in the Play mode. If you wish to stop Insert Editing before the specified edit-out point, press **0000**.

FOR AV INSERT EDITING

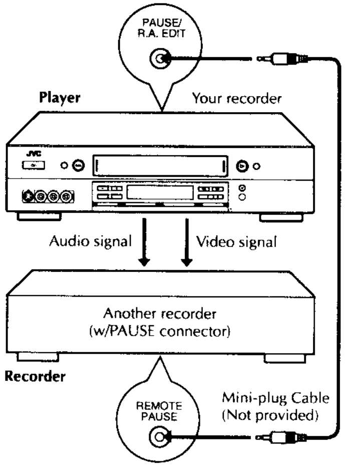
If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...

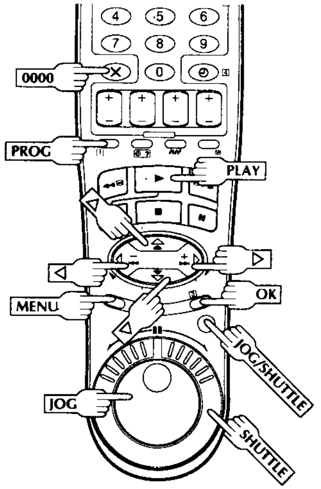
... In step **6** above, after you press **INSERT**, press **A. DUB** also. ("◯" and "▷" blink and "▦" lights up on the front display panel.)

NOTES:

- *Suitable leads can be obtained from your dealer.*
- *Insert editing is not possible with cassettes whose safety tab has been removed.*
- *When insert editing is performed on a tape that has been recorded on another video recorder, the inserted portion may appear distorted.*
- *In insert editing, the recording speed (SP/LP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.*
- *A small portion of the recording which precedes an insert edit may become erased.*
- *Insert Editing is also possible using the rear panel AV1 IN/OUT or AV2 IN/DECODER connector. When using these connectors, make sure to select the correct input mode in step 2.*

Random Assemble Editing





This function makes it easier to create edited videos when your video recorder is used as the source player in combination with another JVC video recorder equipped with a Remote PAUSE Connector. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified.

You can also perform Random Assemble Editing with a second non-JVC recorder. ☞ pg. 43

1 MAKE CONNECTIONS

Connect your recorder's AV1 IN/OUT or S OUT/ AUDIO OUT connectors to the VIDEO IN and AUDIO IN connectors on the recording deck, and connect your recorder's PAUSE/R.A. EDIT connector to the PAUSE connector on the recording deck.

- If the recording deck doesn't have a PAUSE connector, connect to the R.A. EDIT connector instead.
- The Mini-plug cable is a mono 3.5 mm mini-plug to mono 3.5 mm mini-plug connector.

2 PREPARE FOR EDITING

Insert the cassette to be recorded on into the recorder and set the recorder's input mode.

3 LOAD SOURCE CASSETTE

Insert the source cassette into your recorder.

4 SET EDIT MODE

See "Editing Mode Setting" on page 36.

5 START SOURCE PLAYBACK

Press **PLAY**.

6 ACCESS MAIN MENU SCREEN

Press **MENU**.

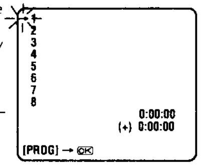
7 ACCESS R.A. EDIT SCREEN

Press △▽ to move the highlight bar (pointer) to "R.A.EDIT", then press **OK** or ▷.

- The screen is superimposed on the video playback in step **8**.

8 LOCATE EDIT-IN POINT

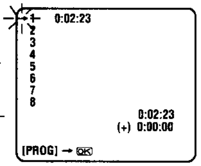
Find the point on the source tape from where you want the edited scene to begin by pressing ◁ ▷ or using the **SHUTTLE** ring or the **JOG** dial, then press **PROG**.



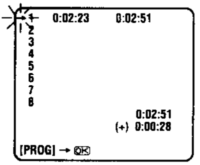
- The edit-in point is registered in memory and appears on the screen.
- To use the **JOG** dial/**SHUTTLE** ring, first press the **JOG/SHUTTLE** button on the remote control so that the button lights up.

9 LOCATE EDIT-OUT POINT

Find the point where you want the edited scene to end by pressing ◁ ▷ or using the **SHUTTLE** ring or the **JOG** dial, then press **PROG**.



- The edit-out point is registered in memory and appears on the screen.
- The total time of the edited scenes is displayed to the right of "(+)".
- Repeat steps **8** and **9** for each additional scene.



10 PREPARE RECORDING DECK

Engage its Record-Standby mode.

11 START R.A. EDIT

Press **OK**.

- Automatic editing begins; all the specified scenes are copied to the recording deck in the order they were registered.
- The on-screen display remains while your recorder searches for each scene (blinking cursor indicates scene currently being searched for), but disappears during actual editing.
- During scene search, the recording deck automatically enters its Record-Standby mode.
- When all registered scenes have been edited, your recorder enters the Pause mode, the recording deck enters its Record-Standby mode, and the cursor blinks at the next available number.

12 END R.A. EDIT

Press **MENU** to return to the normal screen, and engage the Stop mode for your recorder and for the recording deck.

NOTES:

- *You can also monitor the sound when searching for scenes you want to edit in steps **8** – **9**. Since you can hear the soundtrack during selection, you can avoid abrupt or unnatural sounding scene-to-scene transitions. The sound that is heard, however, is not TimeScan Audio.*
- *When editing, there may be a discrepancy of about 2 seconds on the source tape between the locations you chose as edit-in/-out points and the locations your recorder recognizes as those points.*
- *For any scene, the edit-out point must have a counter reading that is at least 1 second after the corresponding edit-in point. Any less than 1 second and the edit-out point will not be registered.*
- *Since the source recorder prerolls during Random Assemble Editing, there must be at least 15 seconds worth of recorded material prior to any edit-in point on the source tape.*
- *If the search time for an edit-in point exceeds 5 minutes, the recording deck enters its Stop mode and editing will not take place.*
- *During steps **8** and **9** — if you engage the Pause mode while registering edit-in and -out points in the R.A. Edit screen, the characters in the on-screen display may become distorted. This is normal.*

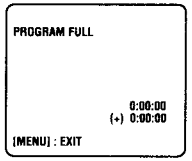
To Make Corrections . . .

. . . during step **8** or **9**, you can cancel registered in and out points by pressing **0000** on the remote control. Each time you press, the preceding point is erased.

- If, for example, you have registered 5 sets of in and out points and want to reset the first set, you have to press **0000** until all points after the first set have been erased. Reenter them after you've repaired the first set of points.

Memory Capacity

Random Assemble Editing shares memory space with the recorder's timer. If there are programs occupied by timer-recording data, those spaces cannot be used to register edit-in and -out points — meaning you won't be able to edit 8 scenes.



- When all 8 programs are full, "PROGRAM FULL" appears on the R.A. EDIT screen.
- To cancel a program, see page 30.

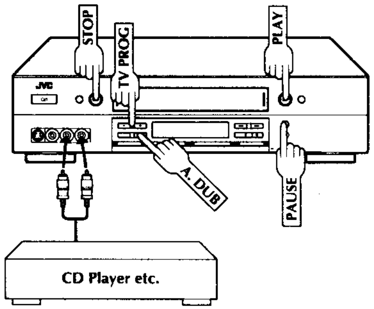
RM-V704U Multi-Brand R.A. Edit Controller (Not provided)

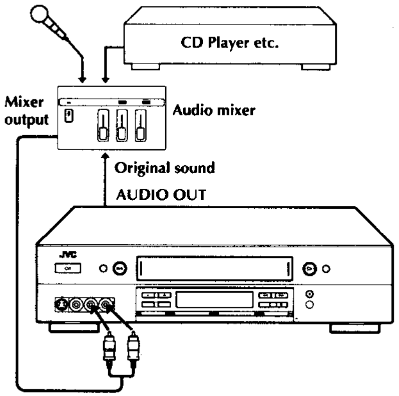
By connecting this controller to your recorder's R.A. EDIT connector, you can perform Random Assemble Editing in combination with a second non-JVC video recorder. The controller is compatible with various major recorder brands. For compatible systems and availability, please consult your JVC dealer.

NOTE:

Although the RM-V704U is designed to operate the recording deck, it may not work with some recorders, or may have limited function capability.

Audio Dubbing

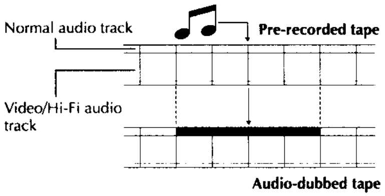




NOTES:

- *When monitoring the sound during Audio Dubbing, the normal soundtrack is automatically selected. If you wish to hear the mixed sound (Hi-Fi + Normal soundtracks), press **AUDIO** on the remote control to select "▶ + ◀ (L+R)+NORM" (☞ pg. 17).*
- *Audio dubbing stops automatically when the counter reaches "0:00:00", and the recorder enters the Play mode. Check the counter reading before dubbing.*
- *Audio dubbing is also possible using the rear panel AV1 IN/OUT or AV2 IN/DECODER connector. When using these connectors, make sure to select the correct input mode in step **2**.*
- *Audio dubbing cannot be performed on a cassette that has had its record safety tab removed.*
- *When playing back an audio-dubbed tape, press **AUDIO** on the remote control to select the soundtrack you wish to hear (☞ pg. 17).*

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.



1 MAKE CONNECTIONS

Connect an audio component to the AUDIO L + R connectors on the recorder's front panel.

- When connecting monaural equipment, use only the recorder's AUDIO L connector.

2 SET INPUT MODE

Press **NUMBER** key "0" and/or **TV PROG** so that "F-1" or "S-1" appears in place of a channel number.

3 LOCATE START POINT

Press **PLAY** to start playback of the tape in your recorder, and press **PAUSE** when you find the point where you want to start dubbing.

4 ENGAGE AUDIO DUBBING

Press **A. DUB**.

- Your recorder enters the Audio Dubbing Pause mode. ("○" blinks, "▷" and "▦" light up on the front display panel.)
- To perform audio dubbing with audio mixing, press **AUDIO** on the remote control to select "▶ + ◀ (L+R)" at this point.
  - * Audio dubbing with audio mixing is not possible if you're using a monaural audio component, or if you don't have an audio mixer.

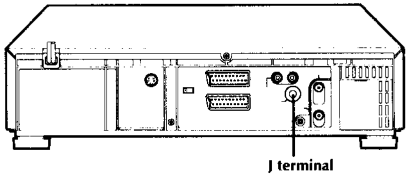
5 START DUBBING

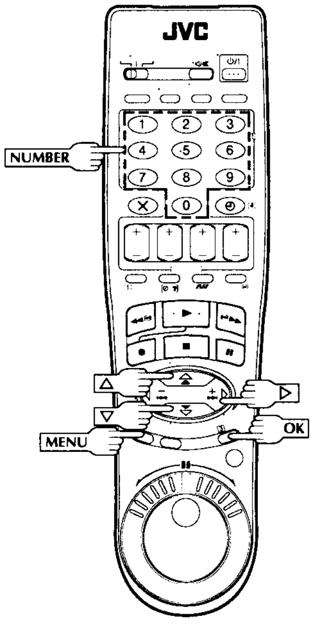
Engage the audio component's Play mode, then press **PLAY** to start the tape in your recorder. Audio dubbing begins at this point.

- "○" blinks and "▷" is displayed on the front display panel.
- To stop dubbing temporarily, press **PAUSE**. Press **PLAY** to resume dubbing.

6 END AUDIO DUBBING

Press **STOP** to stop the tape in your recorder, and engage the audio component's Stop mode.





ATTENTION

After you change your recorder's JLIP ID number, control signal transmission may not work properly. If this happens, turn off the recorder's power off once, then turn it back on and try again.

J Terminal (JLIP(Joint Level Interface Protocol) Connector)

The J Terminal is used to connect the recorder to a personal computer or similar device to allow computerized control of the recorder during editing and certain other operations.

Examples:

With the optional JLIP VIDEO CAPTURE BOX GV-CB3E:

- Enables Random Assemble Editing of up to 99 segments, using this recorder as the playback unit.
- Allows you to capture still images from the recorder into a personal computer.

For further details consult your nearest JVC dealer.

JLIP ID Number

Your recorder has its own JLIP ID number. This ID number must be unique when your recorder is connected to another device via its J terminal. The ID Number is preset to "1" at the factory. You can change this number to any number between "1" and "99". If it is necessary to change the JLIP ID number perform the following steps.

1 ACCESS MAIN MENU SCREEN

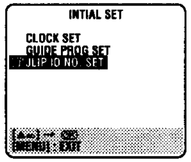
Press **MENU**.

2 ACCESS INITIAL SET SCREEN

Press △▽ to move the highlight bar (pointer) to "INITIAL SET", then press **OK** or ▷.

3 ACCESS JLIP ID NO. SET SCREEN

Press △▽ and move the highlight bar (pointer) to "JLIP ID NO. SET", then press **OK** or ▷.

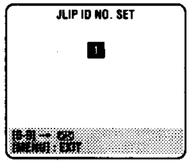

INTIAL SET

CLOCK SET
GUIDE PROG SET
▷JLIP ID NO. SET

[▲▼] → OK
MENU : EXIT

4 SET JLIP ID NUMBER

Press **NUMBER** keys to enter the desired ID number.


JLIP ID NO. SET

1

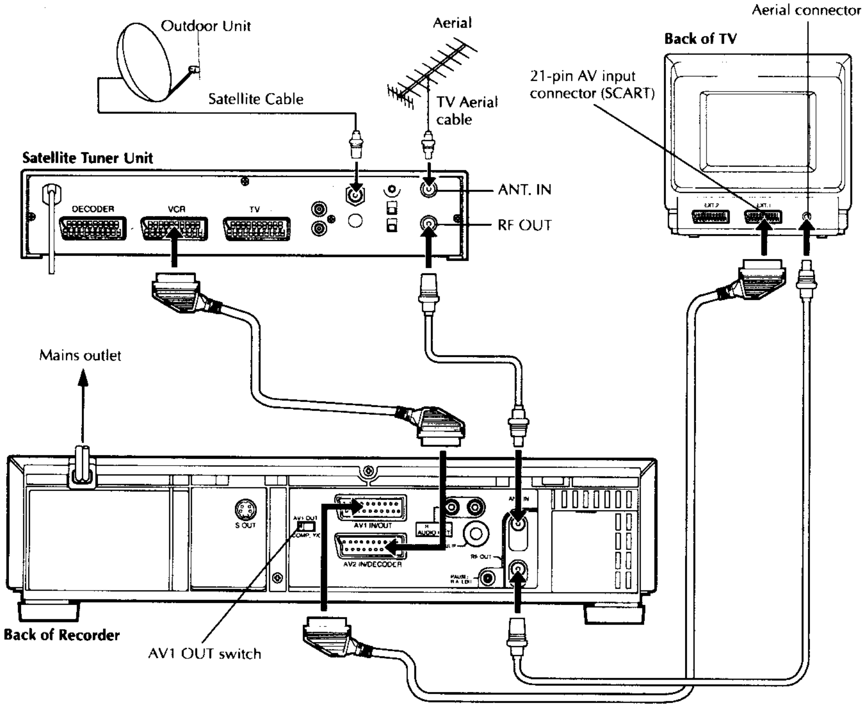
[0-9] → OK
MENU : EXIT

5 RETURN TO NORMAL SCREEN

Press **OK**.

Connection To A Satellite Tuner

The AV2 IN/DECODER connector on the rear panel of your recorder allows simple connection to a satellite tuner.


Outdoor Unit
Satellite Cable
Aerial
TV Aerial cable
21-pin AV input connector (SCART)
Aerial connector
Back of TV
Satellite Tuner Unit
DECODER
VCR
TV
ANT. IN
RF OUT
Mains outlet
S OUT
AV1 IN/OUT
AV2 IN/DECODER
Back of Recorder
AV1 OUT switch

IMPORTANT

Set "AV2 SELECT" to "SAT" on the Mode Set screen (☞ pg. 39).
If you set "AV2 SELECT" to "SAT"...

- It is possible to view a satellite programme with the TV set to its AV mode even if the recorder's power is turned off.
- The AV2 IN/DECODER connector's input is the same signal that is controlled by the rear panel AV1 OUT switch as shown below:
  a- If both the satellite tuner and the TV are compatible with the Y/C signal, set the AV1 OUT switch to Y/C in order to take advantage of high-quality S-VHS pictures.
  b- If the satellite tuner and/or the TV are/is not compatible with the Y/C signal, set the AV1 OUT switch to COMP.

AV2 SELECT setting on the MODE SET screen	Rear panel AV1 OUT switch	AV2 IN/DECODER connector input signal
SAT	COMP.	Composite signal*
	Y/C	Y/C signal**

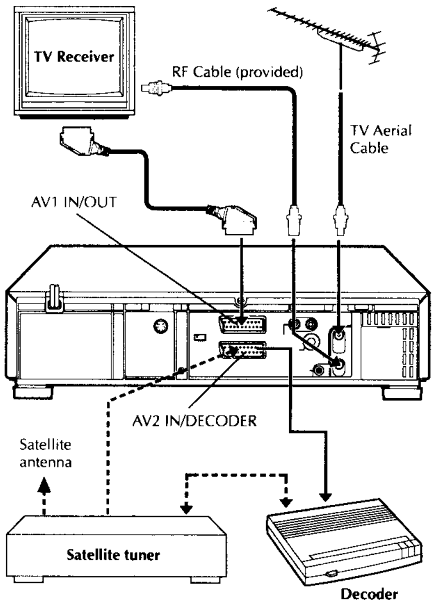
* The composite signal is a regular video signal.
** The Y/C signal is a signal in which the luminance and chrominance signals are separated.

NOTE:

Refer to the instructions supplied with your satellite tuner.

Connecting/ Using A Decoder

The AV2 IN/DECODER connector can be used as an input terminal for an external decoder (descrambler). Simply connect a decoder and you can enjoy the variety of programming that is available through scrambled channels.


TV Receiver
RF Cable (provided)
TV Aerial Cable
AV1 IN/OUT
AV2 IN/DECODER
Satellite antenna
Satellite tuner
Decoder

1 SELECT INPUT MODE

Set "AV2 SELECT" to "DECODER". (☞ pg. 39)

2 CONNECT DECODER

Connect your recorder's AV2 IN/DECODER connector to the decoder's Euroconnector using a 21-pin SCART cable.

3 SET TUNER

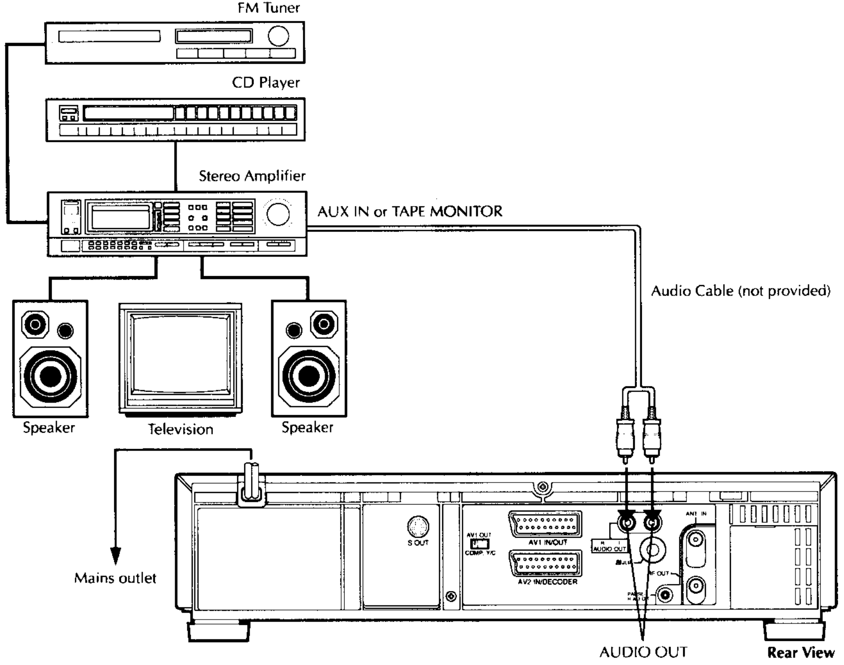
Perform the procedure as described in "When Receiving A Scrambled Broadcast" on page 53.

NOTE:

When Connecting A Satellite Tuner . . .
. . . if you don't have a decoder connect the satellite tuner directly to the video recorder's AV2 IN/DECODER connector.
. . . if you have a decoder, first connect the decoder to the decoder input of the satellite tuner, then connect the satellite tuner's output to the recorder's AV2 IN/DECODER connector. Refer to the instruction book for the satellite tuner and decoder. See page 46 as well for the connections.
. . . set "AV2 SELECT" to "SAT". (☞ pg. 39)
*. . . to view a programme via the satellite tuner, select L-2 mode by pressing **NUMBER** keys and/or **TV PROG** so that "L-2" appears on the display panel.*

Connecting/ Using A Stereo System

These instructions enable you to connect your video recorder to your Hi-Fi stereo system (if you have one) and listen to the soundtrack through the stereo.



1 MAKE CONNECTIONS

Connect the AUDIO OUT L and R connectors on your video recorder to the AUX IN or TAPE MONITOR terminals on your stereo system's receiver or amplifier.

NOTES:

- *When connecting your recorder's audio output connectors to a stereo amplifier, make sure you connect L and R correctly.*
- *If stereo or bilingual TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected stereo system.*
- *When listening to sound through the connected stereo system, turn the TV's volume down completely.*

CAUTIONS:

- This recorder has a dynamic range of more than 80 dB with regards to its Hi-Fi audio capability. It is recommended that you check the maximum level if you are going to listen to the Hi-Fi audio signals through a stereo amplifier. A sudden surge in the input level to the speakers may damage them.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set as this can adversely affect the video playback picture.

Video Channel Set

Video Channel (RF Output Channel) is the channel on which your TV receives picture and sound signals from the video recorder through the RF cable.

IMPORTANT

Perform the following steps only if —
— Video Channel Set has not been done correctly by the Auto Set Up function (☞ pg. 6).
— interference appears in the TV picture after you have moved to a different area or a new station has started broadcasting in your area.
— you change the connection between your recorder and TV from RF connection to AV or S-VIDEO connection, or vice versa.

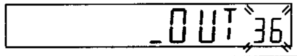
If you have connected the video recorder to your TV via both the provided RF cable and a 21-pin SCART cable (AV connection), or via the provided RF cable, the provided S-Video cable and an audio cable (S-VIDEO connection), since you do not need the video channel you have to set the video channel to off.

If you have connected the video recorder to your TV via the provided RF cable only (RF connection), you have to set the correct video channel.

Before performing the following steps, make sure the recorder's power is off and there is no cassette inserted in the recorder.

1 ACCESS VIDEO CHANNEL SET MODE

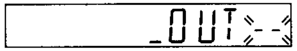
Hold down **STOP** (■/⏏) on the recorder until the display panel shows the following.



2 SET VIDEO CHANNEL

With AV Connection or S-VIDEO Connection

Press **TV PROG** – until the display panel shows "_OUT– –".

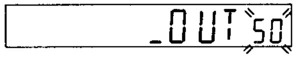


- Now the video channel is set to off.

With RF Connection

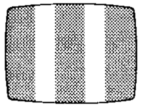
Press **TV PROG +** or – to set the video recorder to a vacant channel between 22 and 69 which is not occupied by any local station in your area.

(Ex.) If channel 50 is available in your area



Then set your TV to UHF channel 50.

- If the two vertical white bars appear clearly on the screen as shown to the right, go to step **3**.
- If the two vertical white bars do not appear clearly, re-set the video recorder to another vacant channel and try again.



NOTES:

- *If you set the video recorder to a channel which is occupied by a local station or has neighbouring channels that are occupied by local stations, the picture reception quality will be affected and some interference noise will appear on the TV screen. Be sure to select a vacant channel which has no broadcast on neighbouring channels.*
- *If you cannot obtain the two vertical white bars clearly with any channel between 22 and 69, consult your JVC dealer.*

3 EXIT VIDEO CHANNEL SET MODE

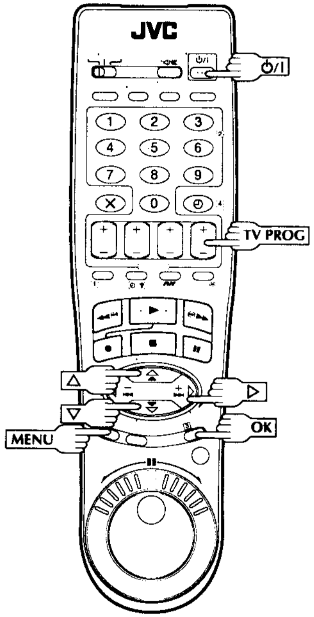
Press **OK** on the remote control.

With AV Connection or S-VIDEO Connection:
To view picture signals from the video recorder, set your TV to its AV mode.

With RF Connection:
The channel on which the screen in step 2 appears clearly is your video channel.
To view picture signals from the video recorder, set your TV to the Video Channel.

Tuner Set

Turn on the TV and select the VIDEO channel (or AV mode).



IMPORTANT

Perform the following steps only if —
— Auto Channel Set has not been set correctly by Auto Set Up function (☞ pg. 6).
— you have moved to a different area or if a new station starts broadcasting in your area.

Your recorder needs to memorize all necessary stations in channel positions in order to record TV programmes. Auto Channel Set automatically assigns all receivable stations in your area to call them up by using the **TV PROG** buttons without going through any vacant channel.

Auto Channel Set

1 TURN ON THE RECORDER

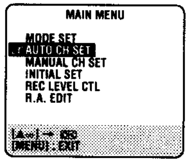
Press ⏻/I.

2 ACCESS MAIN MENU SCREEN

Press **MENU**.

3 ACCESS COUNTRY SET SCREEN

Press △▽ to move the highlight bar (pointer) to "AUTO CH SET", then press **OK** or ▷.

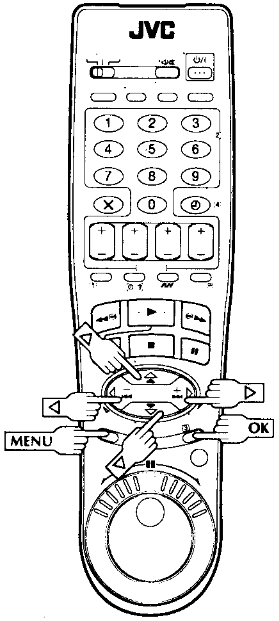


4 SELECT COUNTRY

Press △▽ to move the highlight bar (pointer) to your country's name, then press **OK** or ▷.

5 SELECT LANGUAGE

Press △▽ to move the highlight bar (pointer) to the language of your choice.



IMPORTANT

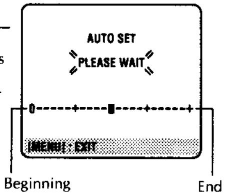
- In certain reception conditions, station names may not be stored correctly, and auto Guide Program Number Set may not work properly. If the Guide Program numbers are not set properly, when you timer-record a TV programme using ShowView, the recorder will record a TV programme of a different station. When programming the timer using ShowView, be sure to check whether the channel position on which your recorder receives the broadcasting station you wish to record is selected (☞ pg. 26, "ShowView Timer Programming").
- Your video recorder memorizes all detected stations even if reception of some of them is poor. In these cases picture quality may be poor. To delete those stations with an unacceptable picture ☞ "Delete A Channel" on page 53.

NOTES:

- *Fine tuning is performed automatically during Auto Channel Set. If you want to perform it manually, refer to page 56.*
- *If you perform Auto Channel Set when the aerial cable is not connected properly, "SCAN COMPLETED -NO SIGNAL-" appears on the screen in step 7. When this happens, make sure of the aerial connection and press **OK**; Auto Channel Set will take place again.*

6 PERFORM AUTO CHANNEL SET

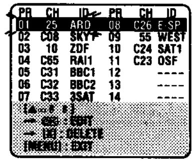
Press **OK** or ▷.



- The Auto Set screen appears, and remains on screen while the recorder searches for receivable stations. As Auto Channel Set progresses, the "■" mark on the screen moves from left to right.

Wait until the screen as shown in step 7 appears.

7 VIEW CONFIRMATION SCREEN



PR	CH	ID	PR	CH	ID
01	25	ARD	08	C26	E-SP
02	C08	SKY	09	55	WEST
03	10	ZDF	10	C24	SAT1
04	C65	RAI1	11	C23	OSF
05	C31	BBC1	12		----
06	C32	BBC2	13		----
07	C33	3SAT	14		----

C: Cable

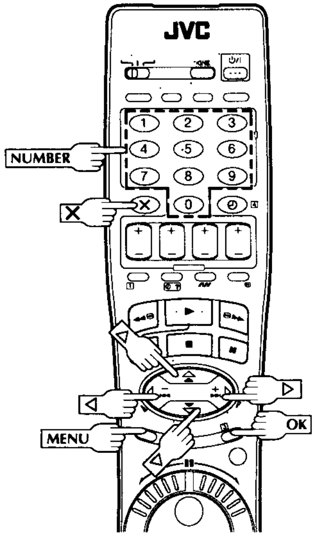
After "SCAN COMPLETED" is displayed on the screen for about 5 seconds, the Confirmation screen looking like the one to the right appears. The stations your recorder located appear on a Confirmation screen — channel positions (PR), channels (CH) and station names (ID – ☞ pg. 55). The blueback screen and the programme currently being broadcast by the blinking station appear alternately for 8 seconds each.
To view the next page, use the △▽◁▷ button on the remote control.

- The stations located in the selected country appear at the top of the list.
- The Guide Program numbers will also be set automatically during Auto Channel Set.

8 RETURN TO NORMAL SCREEN

Press **MENU**.

- Using the Confirmation screen, you can skip or add channel positions, enter station names and perform other operations. Refer to pages 52 – 56 for the procedures.
- Depending on reception conditions, the stations may not be stored in order, and the station names may not be stored correctly.
- For information on scrambled broadcasts, refer to page 53.



Storing Channels Manually

Store channels that were not stored during Auto Set Up (☞ pg. 6) or Auto Channel Set (☞ pg. 50).

1

ACCESS MAIN MENU

Press **MENU**.

2

ACCESS CONFIRMATION SCREEN

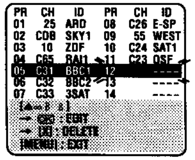
Press △▽ to move the highlight bar (pointer) to "MANUAL CH SET", then press **OK** or ▷. The Confirmation screen appears.

3

SELECT POSITION

Press △▽ ◁ ▷ until an open position in which you want to store a channel begins blinking, then press **OK**. The Manual Channel Set screen appears.

(Ex.) To store in position 12.



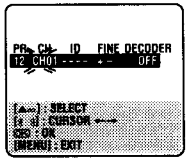
```
PR  CH   ID    PR  CH   ID
01   25  ARD   08  C26  E-SP
02  C08  SKY1  09   55  WEST
03   10  ZDF   10  C24  SAT1
04  C65  RAI1  11  C23  OSF
05  C31  BBC1  12       ----
06  C32  BBC2  13       ----
07  C33  3SAT  14       ----
```

The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

4

SELECT BAND

Press △▽ to change the band between CH (regular) and CC (cable), then press ▷.



```
PR  CH    ID    FINE DECODER
12  CH01  ----  +-   OFF
```

The blueback screen and the programme currently being broadcast by the selected channel appear alternately for 8 seconds each.

5

INPUT CHANNEL

Press the **NUMBER** keys to input the channel number you want to store.

- Input "0" before any single number entries.
- To input the registered station name (ID – ☞ pg. 55), press ▷ until "– – – –" (ID setting) begins blinking, then press △▽.
- For fine tuning adjustment, press ▷ until "+/–" begins blinking, then press △▽. While tuning, "+" or "–" appears.
- When storing a channel that sends scrambled broadcasts, press ▷ until "OFF" (Decoder setting) blinks, then press △▽ to set "DECODER" to "ON" ("OFF" is the default setting).
- When "AV2 SELECT" is set to "VIDEO", "S-VIDEO", or "SAT", the "DECODER" setting cannot be changed (☞ pg. 39).

6

ENTER NEW CHANNEL INFORMATION

Press **OK** and the Confirmation screen appears.

- Repeat steps **3** through **6** as necessary.

7

CLOSE CONFIRMATION SCREEN

Press **MENU**.

- To change positions, see "Change Station Channel Position" (☞ pg. 53).
- If you wish to set station names other than the ones registered in your recorder, ☞ "Set Stations (B)" on page 54.

ATTENTION

After you have stored channels manually, be sure to perform Guide Program Number Set (☞ pg. 57) in order to get proper results from ShowView timer recording.

Delete A Channel

Perform steps **1** and **2** of "Storing Channels Manually" on page 52 to access the Confirmation screen before continuing.

1

SELECT ITEM

Press △▽ ◁ ▷ until the item you want to delete begins blinking.

2

DELETE CHANNEL

Press **X**.

- The item directly beneath the cancelled one moves up one line.
- Repeat steps **1** and **2** as necessary.

3

CLOSE CONFIRMATION SCREEN

Press **MENU**.

Change Station Channel Position

Perform steps **1** and **2** of "Storing Channels Manually" on page 52 to access the Confirmation screen before continuing.

1

SELECT ITEM

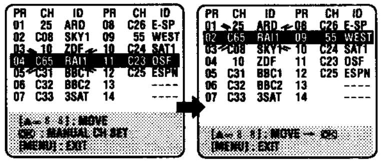
Press △▽ ◁ ▷ until the item you want to move begins blinking. Then press **OK** and the station name (ID) and its channel (CH) number begin blinking.

2

SELECT NEW POSITION

Press △▽ ◁ ▷ to move the station to the new channel position, then press **OK**.

Example: If you moved the station in position 4 to position 2, the stations originally in positions 2 and 3 each move down one space.



```
PR  CH   ID    PR  CH   ID
01   25  ARD   08  C26  E-SP
02  C08  SKY1  09   55  WEST
03   10  ZDF   10  C24  SAT1
04  C65  RAI1  11  C23  OSF
05  C31  BBC1  12  C25  ESPN
06  C32  BBC2  13       ----
07  C33  3SAT  14       ----
```

```
PR  CH   ID    PR  CH   ID
01   25  ARD   08  C26  E-SP
02  C65  RAI1  09   55  WEST
03  C08  SKY1  10  C24  SAT1
04   10  ZDF   11  C23  OSF
05  C31  BBC1  12  C25  ESPN
06  C32  BBC2  13       ----
07  C33  3SAT  14       ----
```

- Repeat steps **1** and **2** as necessary.

3

CLOSE CONFIRMATION SCREEN

Press **MENU**.

When Receiving A Scrambled Broadcast

1

SELECT DECODER MODE

Set "AV2 SELECT" to "DECODER" (☞ pg. 39).

2

ACCESS CONFIRMATION SCREEN

Perform steps **1** and **2** of "Storing Channel Manually" on page 52.

3

SELECT POSITION

Press △▽ ◁ ▷ to select the channel position broadcasting scrambled programmes, then press **OK** twice.

4

CHANGE DECODER SETTING

Press ▷ until "OFF" (decoder setting) begins blinking, and set it to "ON" by pressing △▽.

5

RETURN TO CONFIRMATION SCREEN

Press **OK**.

- Repeat steps **3** through **5** as necessary.

6

CLOSE CONFIRMATION SCREEN

Press **MENU**.

ATTENTION

After you have deleted channels or changed channel positions, be sure to perform Guide Program Number Set (☞ pg. 57) in order to get proper results from ShowView timer recording.

Set Stations (A)

Set station names that are registered in your recorder.

Perform steps **1** and **2** of "Storing Channels Manually" on page 52 to access the Confirmation screen before continuing.

1

SELECT ITEM

Press △▽ ◁▷ until the item you want begins blinking.

2

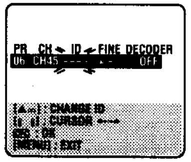
ACCESS MANUAL CHANNEL SET SCREEN

Press **OK** twice.

3

SELECT NEW STATION

Press ▷ until the station name (ID) begins blinking, then press △▽ until the new station's name (ID) you want to store begins blinking.
Registered station names (☞ pg. 55) appear as you press △▽.



4

SWITCH STATIONS

Press **OK**.

- The Confirmation screen appears.
- Repeat steps **1** through **4** as necessary.

5

CLOSE CONFIRMATION SCREEN

Press **MENU**.

Set Stations (B)

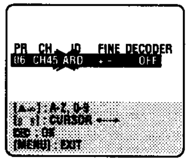
Set station names other than the ones registered in your recorder.

Perform steps **1** and **2** of "Storing Channels Manually" on page 52 to access the Confirmation screen and then perform step **1** and **2** of "Set Stations (A)" on the left before continuing.

1

SELECT STATION NAME CHARACTER

Press ▷ until the first letter of the station name begins blinking.



2

ENTER NEW CHARACTER

Press △▽ to cycle through the characters (A–Z, 0–9, –, ∗, +, — (space)) and stop when the desired character is indicated, then press ▷ to enter. Enter the remaining characters the same way (maximum of 4).
After entering all characters, press **OK**.

- The Confirmation screen appears.
- If you make a mistake, press ◁ until the incorrect character begins blinking. Then enter the correct character by pressing △▽.

3

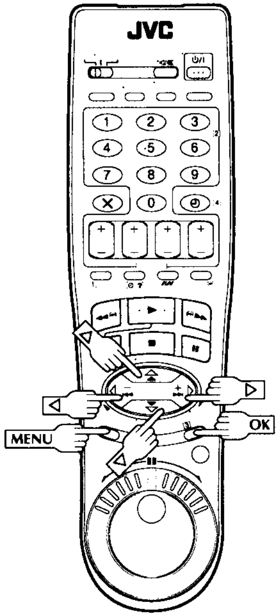
CLOSE CONFIRMATION SCREEN

Press **MENU**.

TV Station And ID List

ID*	STATION NAME
1000	TV1000
3SAT	3SAT
ADLT	ADULT
ANT3	ANTENA3
ARD	ARD
ARTE	ARTE
BBC	BBC GROUP
BBC1	BBC1
BBC2	BBC2
BR3	BAYERN3
C+	CANAL PLUS
C1	PORTUGUSES
CAN5	CANALE5
CH4	CHANNEL4
CH5	CHANNEL5
CHLD	CHILD
CINE	CINEMA
CLUB	TELECLUB
CMT	CMT
CNN	CNN
CSUR	ANDALUCIA
DISC	DISCOVERY
DR	DR TV
DRS	DRS
DSF	DSF
ETB1	ETB1
ETB2	ETB2
EURO	EURONEWS
EUSP	EUROSPORTS
FEMM	FEMMAN
FILM	FILM
FNET	FILMNET
FR2	France2
FR3	France3
GALA	GALAVISION
HR3	HESSEN3
INFO	INFO-KANAL
ITA1	ITALIA1
ITA7	ITALIA7
ITV	ITV
JSTV	JSTV
KA2	KA2
KAB1	KABEL1
KAN2	KANAL2
LOCA	LOCAL
M6	M6
MBC	MBR
MCM	MCM
MDR	MDR
MOVE	MOVIE
MTV	MTV
MTV3	MTV3
N3	NORD3
N-TV	N-TV
NBC	NBC SUPER
NDR3	NDR3
NED1	NED1
NED2	NED2
NED3	NED3
NEWS	
NICK	NICKELODEON
NRK	NRK
NRK2	NRK2
ODE	ODEON
ORF1	ORF1
ORF2	ORF2
ORF3	ORF3
OWL3	OWL3
PREM	PREMIERE
PRO7	PRO7
RAI1	RAI1
RAI2	RAI2
RAI3	RAI3
RET4	RETE4
21	TELE21
RTBF	RTBF1 or 2
RTL	RTL
RTL2	RTL2
RTL4	RTL4
RTL5	RTL5
RTP	RTP
S4	SCHWEIZ4
SAT1	SAT1
SBS	SBS
SHOW	SHOW
SIC	SOCIEDADE
SKY	SKY CHANNEL
SKYN	SKY NEWS
SPRT	SPORT
SRTL	SUPER RTL
STAR	STAR-TV
SVT1	SVT1
SVT2	SVT2
SW3	SUEDWEST3
TCC	TCC
TELE	TELE
TEL5	TELE5
TF1	TF1
TM3	TM3
TMC	TELEMONTECARLO
TNT	TNT INT
TRT	TRT INT
TSI	TSI
TSR	TSR
TV1	BRTN TV1
TV2	BRTN TV2
TV3	TV3
TV4	TV4
TV5	TV5
TV6	TV6
TVE1	TVE1
TVE2	TVE2
TVG	TV GALICIA
TVI	TV INDEPENDENT
TVN	TV NORGE
VCR	VIDEO
VERO	VERONICA
VH-1	VH-1
VIVA	VIVA
VIV2	VIVA2
VMTV	VIDEO MUSIC
VOX	VOX
VT4	VT4
VTM	VTM
WDR1	West1
WDR3	West3
YLE1	YLE1
YLE2	YLE2
ZDF	ZDF
ZTV	ZTV

* The "ID" abbreviation is what is shown on-screen in lieu of the station name. The "ID" abbreviation is listed in the Confirmation screen and is displayed on the TV screen when the recorder is tuned to a different station.



Fine-Tuning Channels Already Stored

Perform steps **1** and **2** of "Storing Channels Manually" on page 52 to access the Confirmation screen before continuing.

1 SELECT CHANNEL TO FINE-TUNE

Press △▽ ◁▷ until the channel you want to tune begins blinking.

2 ACCESS MANUAL CHANNEL SET SCREEN

Press **OK** twice. The Manual Channel Set screen appears.

3 PERFORM TUNING

Press ▷ until "+/–" begins blinking, then press △▽ until the picture is its clearest. Then press **OK**.

- The Confirmation screen appears.
- Repeat steps **1** through **3** as necessary.

4 CLOSE CONFIRMATION SCREEN

Press **MENU**.

SHOWVIEW Setup

IMPORTANT

Normally, Auto Set Up (☞ pg. 6) or Auto Channel Set (☞ pg. 50) sets the Guide Program Numbers automatically. You need to set the Guide Program Numbers manually only in the following cases.

- *When timer-programming with SHOWVIEW, the channel position, where the station you wish to record is received on your recorder, is not selected.*

— Set the Guide Program Number for that station manually.

- *When you add/delete a channel or change channel positions manually after Auto Set Up or Auto Channel Set has taken place.*

— Set the Guide Program Numbers for all the receivable stations manually.

- *When you wish to timer-record a satellite programme with SHOWVIEW.*

— Set the Guide Program Numbers for all satellite broadcasts received on your satellite tuner.

Turn on the TV and select the VIDEO channel (or AV mode).

Guide Program Number Set

1 ACCESS MAIN MENU SCREEN

Press **MENU**.

2 ACCESS INITIAL SET SCREEN

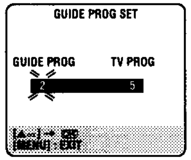
Press △▽ to move the highlight bar (pointer) to "INITIAL SET", then press **OK** or ▷.

3 ACCESS GUIDE PROG SET SCREEN

Press △▽ to move the highlight bar (pointer) to "GUIDE PROG SET", then press **OK** or ▷.

4 ENTER GUIDE PROG NUMBER

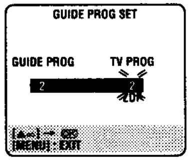
Press △▽ or **NUMBER** keys to enter the Guide Program number for the desired station as shown in the TV listings. Then press **OK** or ▷.



(Ex.) When inputting the Guide Program number 2 for ZDF.

5 ENTER RECEIVING CHANNEL POSITION NUMBER

Press △▽ or **NUMBER** keys to input the number of the recorder's channel position on which the Guide Program number's broadcast is received. Then press **OK** or ▷.



(Ex.) If ZDF is received on channel position 2.

- If the satellite broadcast is received on your recorder's auxiliary channel "L-2", select "L-2" for the channel position.
- Repeat steps **4** and **5** as necessary.

6 RETURN TO NORMAL SCREEN

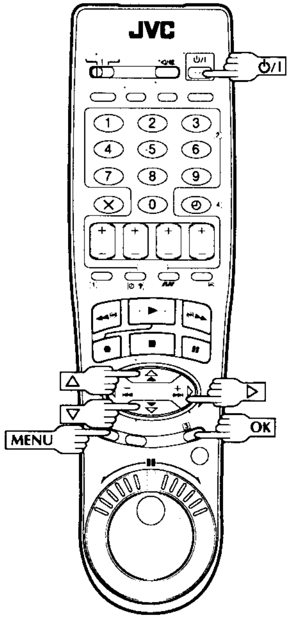
Press **MENU**.

Guide Program Number

"Guide Program (GUIDE PROG) number" refers to the assigned TV station numbers, according to broadcast area, for SHOWVIEW timer recording. The Guide Program numbers can be found in most TV listings.

Clock Set

Turn on the TV and select the VIDEO channel (or AV mode).



Just Clock
The Just Clock function provides accurate time keeping through automatic adjustments at regular intervals, by reading data from a PDC signal.
The Just Clock option can be set "ON" or "OFF" at the Clock Set screen (the default setting is "OFF"). Press **OK** until the Just Clock setting begins blinking, then press △▽ to change the setting.

IMPORTANT: If you turn off Just Clock, the accuracy of your recorder's built-in clock may be reduced, which could adversely effect timer recording. We recommend you to keep Just Clock on. In cases where the clock setting data from a PDC signal is incorrect, however, you are advised to keep Just Clock set to "OFF".

IMPORTANT

If you performed Auto Set Up (☞ pg. 6) or Auto Channel Set (☞ pg. 50), without ever having set the clock previously, the recorder's built-in clock is also set automatically. Perform the following steps only if —
— Auto Clock Set has not been performed correctly by Auto Set Up or Auto Channel Set.
or
— the recorder's memory backup has expired.
or
— you want to change Just Clock setting (☞ "Just Clock" in the left column).

1

TURN THE RECORDER ON

Press ⏻/I.

2

ACCESS MAIN MENU SCREEN

Press **MENU**.

3

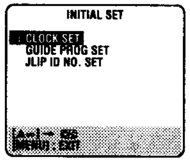
ACCESS INITIAL SET SCREEN

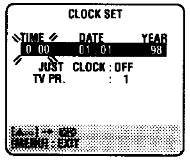
Move the highlight bar (pointer) to "INITIAL SET" by pressing △▽, then press **OK** or ▷.

4

ACCESS CLOCK SET SCREEN

Move the highlight bar (pointer) to "CLOCK SET" by pressing △▽, then press **OK** or ▷. The Clock Set screen appears.


INITIAL SET
CLOCK SET
GUIDE PROG SET
JLIP ID NO. SET
[▲▼] → OK
[MENU] : EXIT

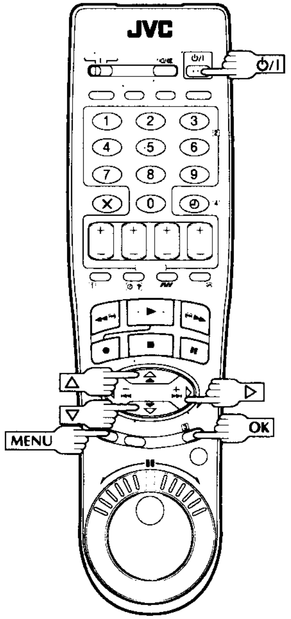

CLOCK SET
TIME DATE YEAR
0 00 01 . 01 98
JUST CLOCK : OFF
TV PR. : 1
[▲▼] → OK
[MENU] : EXIT

5

SET DATE AND TIME

Press △▽ to set the time, then press **OK** or ▷. The "date" display begins blinking. Repeat the same procedure to set the date and year.

- When you set the time, press and hold △▽ to change the time by 30 minutes.
- When you set the date, press and hold △▽ to change the date by 15 days.



6

SET JUST CLOCK

The default setting is "OFF". Set as desired by pressing △▽, then press **OK** or ▷.

- For the Just clock function, ☞ "Just Clock" on page 58.
- If you set to "OFF", you can disregard the next step as you won't be able to receive regular clock adjustments.

7

SET CLOCK DATA SOURCE CHANNEL POSITION

The recorder is preset to receive clock setting and adjustment data from channel position 1. Press △▽ to set the channel position to the number representing the station transmitting clock setting data, then press **OK** or ▷.

8

START CLOCK OPERATION

Press **MENU**.

NOTES:

- *Just Clock (when set to "ON") adjusts the recorder's built-in clock every hour, except for 23:00, 0:00, 1:00 and 2:00.*
- *Just Clock is not effective when . . .*
  - *the recorder's power is on.*
  - *the recorder is in the Timer mode.*
  - *a difference of more than 3 minutes exists between the built-in clock's time and the actual time.*
  - *the recorder is in the Auto Satellite Prog Rec mode (☞ pg. 32).*
  - *the recorder is in the Power Save mode (☞ pg. 11).*
- *If Just Clock is set to "ON", the recorder's clock is automatically adjusted at the start/end of Summer Time.*
- *Just Clock may not function properly depending on the reception condition.*

Before requesting service for a problem, use this chart and see if you can repair the trouble yourself. Small problems are often easily corrected, and this can save you the trouble of sending your video recorder off for repair.

POWER

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. No power is applied to the recorder.	● The mains power cord is disconnected.	Connect the mains power cord.
2. The clock is functioning properly, but the recorder cannot be powered.	● "◷" is displayed on the display panel with Auto Timer set to "OFF".	Press the ◷ button to turn the "◷" indicator off.
3. The remote control won't function.	● The batteries are discharged. ● The **VCR/TV/SAT** switch is in the wrong position.	Replace the dead batteries with new ones. Set the switch to the position corresponding with the unit you want to operate.

TAPE TRANSPORT

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The tape does not run during recording.	● "▦" is displayed on the display panel.	Press **PLAY** to turn the "▦" indicator off.
2. The tape will not rewind or fast-forward.	● The tape is already fully rewound or fast-forwarded.	Check the cassette.

PLAYBACK

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. The playback picture does not appear while the tape is running.	● If you're using the RF OUT connection . . . . . . the TV receiver's channel selector is not set to the VIDEO channel. . . . the recorder's VIDEO channel has not been correctly set. ● If you're using the AV or S-VIDEO connection, the TV receiver is not set to the AV mode.	If you are using the RF OUT connection . . . . . . set the TV receiver to the VIDEO channel. (☞ pg. 7) . . . perform "Video Channel Set". (☞ pg. 49) If you are using the AV or S-VIDEO connection, set the TV to its AV mode.
2. Noise appears during visual search.	● This is normal during visual search other than TimeScan.	
3. Noise appears during normal playback.	● The automatic tracking mode is engaged.	Try manual tracking. (☞ pg. 15)
4. The playback picture is blurred or interrupted while TV broadcasts are clear.	● The video heads may be dirty.	Consult your JVC dealer.
5. Breaks are noticeable in Hi-Fi soundtrack	● Automatic tracking is engaged.	Engage and adjust tracking manually. (☞ pg. 15)

RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Recording cannot be started.	● There is no cassette loaded, or the cassette loaded has had its Record Safety tab removed.	Insert a cassette, or using adhesive tape, reseal the slot where the tab was removed.
2. TV broadcasts cannot be recorded.	● "L-1", "L-2", "F-1" or "S-1" has been selected as the input mode.	Set to the desired channel.
3. Tape-to-tape editing is not possible.	● The source (another video recorder, camcorder) has not been properly connected. ● All necessary power switches have not been turned on. ● The input mode is not correct.	Confirm that the source is properly connected. Confirm that all units' power switches are turned on. Set the input mode to "L-1", "L-2", "F-1" or "S-1".
4. Camcorder recording is not possible.	● The camcorder has not been properly connected. ● The input mode is not correct.	Confirm that the camcorder is properly connected. Set the input mode to "L-1", "L-2", "F-1" or "S-1".

TIMER RECORDING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Timer recording won't work.	● The clock and/or the timer have been set incorrectly. ● The timer is not engaged.	Re-perform the clock and/or timer settings. Press ◷ and confirm that "◷" is displayed on the display panel.
2. Timer programming is not possible.	● Timer recording is in progress.	Timer programming can't be performed while a timer recording is in progress. Wait until it finishes.
3. "◷" and "📼" on the display panel won't stop blinking.	● The timer is engaged but there's no cassette loaded.	Load a cassette with the Record Safety tab intact, or cover the hole using adhesive tape.
4. The cassette is automatically ejected, and "◷" and "📼" on the display panel won't stop blinking.	● The loaded cassette has had its Record Safety tab removed.	Remove the cassette and cover the hole with adhesive tape, or insert a cassette with the Record Safety tab intact.
5. "◷" blinks for 10 seconds and the Timer mode is disengaged.	● ◷ has been pressed when there are no programs in memory, or the timer record information has been programmed incorrectly.	Check the programmed data and re-program as necessary, then press ◷ again.
6. The cassette is automatically ejected, the power shuts off and "◷" and "📼" won't stop blinking.	● The end of the tape was reached during timer recording.	The programme may not have been recorded in its entirety. Next time make sure you have enough time on the tape to record the entire programme.
7. SHOWVIEW does not timer-record properly.	● The recorder's channel positions have been set incorrectly.	Refer to "Guide Program Number Set" and re-perform the procedure (☞ pg. 57).

OTHER PROBLEMS

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Whistling or howling is heard from the TV during camcorder recording.	● The camcorder's microphone is too close to the TV. ● The TV's volume is too high.	Position the camcorder so its microphone is away from the TV. Turn the TV's volume down.
2. When scanning channels, some of them are skipped over.	● Those channels have been designated to be skipped.	If you need the skipped channels, restore them (☞ pg. 52).
3. The channel cannot be changed.	● Recording is in progress.	Press **PAUSE** to pause the recording, change channels, then press **PLAY** to resume recording.
4. Channel settings that were made manually seem to have changed or disappeared.	● After the manual settings were made, Auto Channel Set was performed.	Perform manual setting again.
5. No channels are stored in the recorder's memory.	● The TV aerial cable was not connected to the recorder when Auto Set Up was performed.	Connect the TV aerial cable to the recorder properly and turn off the recorder power once, then turn the recorder power back on again. The recorder will try Auto Set Up again (☞ pg. 6).
6. The remote control won't operate the TV or satellite tuner.	● The remote control brand setting is incorrect.	Re-set the remote control to the correct brand (☞ pg. 34, 35).

PLAYBACK

Q. What happens if the end of the tape is reached during playback or search?
A. The tape is automatically rewound to the beginning.

. . . .

Q. Can the video recorder indefinitely remain in the still mode?
A. No. It stops automatically after 5 minutes to protect the heads.

. . . .

Q. When returning from multi-speed search to normal playback, the picture is disturbed. Should I be concerned about this?
A. No, it is normal.

. . . .

Q. Other than preventing further recording, what effect does removing the Record Safety tab have?
A. It disables marking of index codes.

. . . .

Q. Sometimes, during Index Search, the video recorder can't find the programme I want to see. Why not?
A. There may be index codes too close together.

. . . .

RECORDING

Q. When I pause and then resume a recording, the end of the recording before the pause is overlapped by the beginning of the continuation of recording. Why does this happen?
A. This is normal. It reduces distortion at the pause and resume points.

. . . .

Q. Can the video recorder indefinitely remain in the Record-Pause mode?
A. No. The video recorder goes to its Stop mode automatically after 5 minutes to protect the heads.

. . . .

Q. What happens if the tape runs out during recording?
A. The video recorder automatically rewinds it to the beginning.

. . . .

TIMER RECORDING

Q. "◌" and "◷" remain lit on the display panel. Is there a problem?
A. No. This is a normal condition for a timer recording in progress.

. . . .

Q. Can I programme the timer while I'm watching a tape or a TV broadcast?
A. You won't see the picture as it is replaced by the on-screen menu, but the audio from the programme or tape you're viewing can be heard.

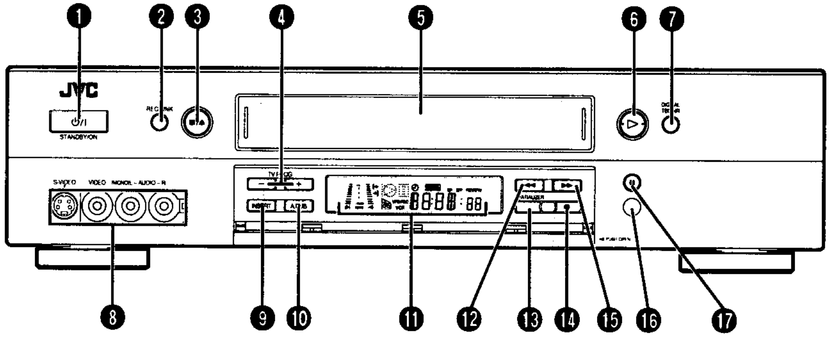
. . . .

Q. Is it possible to timer-record a TV programme broadcast in 2000?
A. Yes, it is possible.

. . . .

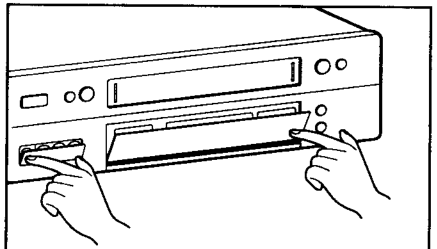
ATTENTION
This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the recorder off and unplug the mains power cord. Then plug it in again and turn the recorder on. Take out the cassette. After checking the cassette, operate the unit as usual.

FRONT VIEW



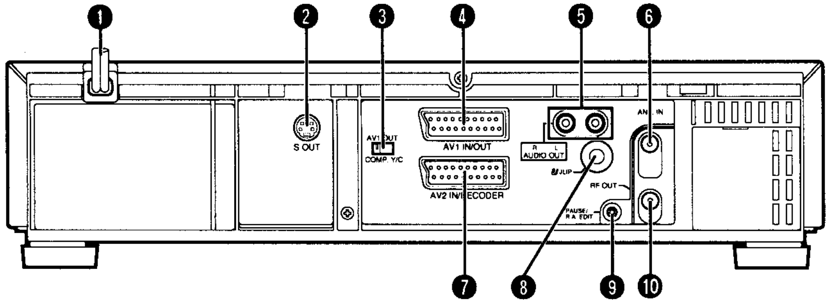
❶ STANDBY/ON ⏻/I Button ☞ pg. 6
❷ REC LINK Button ☞ pg. 32
❸ STOP/EJECT Button ☞ pg. 13
❹ TV PROG +/– Buttons ☞ pg. 20
❺ Cassette Loading Slot
❻ PLAY Button ☞ pg. 13
❼ DIGITAL TBC/NR Button ☞ pg. 16
❽ S-VIDEO/VIDEO/AUDIO Input Connectors ☞ pg. 37
❾ INSERT Button ☞ pg. 40
❿ Audio Dubbing [A. DUB] Button ☞ pg. 44
⓫ Display Panel ☞ pg. 64
⓬ Rewind [REW] Button ☞ pg. 13
⓭ SPATIALIZER Button ☞ pg. 17
⓮ RECORD Button ☞ pg. 20
⓯ Fast-Forward [FF] Button ☞ pg. 13
⓰ Infrared Beam Receiving Window
⓱ PAUSE Button ☞ pg. 14

Attach the provided connector cover when you do not use the front panel connectors.



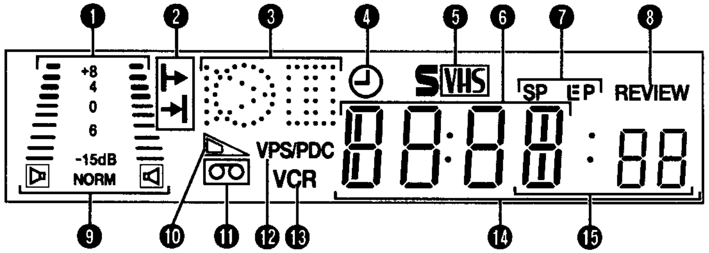
Open the lid to access covered buttons/connectors.

REAR VIEW


①
②
③
④
⑤
⑥
S OUT
AV1 OUT
COMP Y/C
AV1 IN/OUT
AV2 IN/DECODER
R L
AUDIO OUT
JLIP
ANT IN
RF OUT
PAUSE/ R.A. EDIT
⑦
⑧
⑨
⑩

- ① Mains Power Cord ☞ pg. 4
- ② S-Video OUT Connector ☞ pg. 5
- ③ AV1 OUT Switch ☞ pg. 4
- ④ AV1 IN/OUT Connector ☞ pg. 4, 39
- ⑤ AUDIO OUT (L/R) Connectors ☞ pg. 48
- ⑥ ANT. IN Connector ☞ pg. 4
- ⑦ AV2 IN/DECODER Connector ☞ pg. 39, 46, 47
- ⑧ J terminal [JLIP (Joint Level Interface Protocol) Connector] ☞ pg. 45
- ⑨ Remote PAUSE Connector ☞ pg. 37
  R.A. EDIT Connector ☞ pg. 42
- ⑩ RF OUT Connector ☞ pg. 4

DISPLAY PANEL

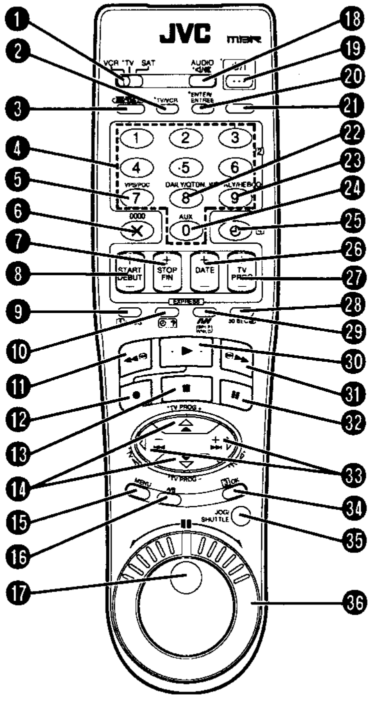

①
②
③
④
⑤
⑥
⑦
⑧
+8
4
0
6
-15dB
NORM
SVHS
SP
EP
REVIEW
VPS/PDC
VCR
88:88 : 88
⑨
⑩
⑪
⑫
⑬
⑭
⑮

- ① B.E.S.T. Picture System Display ☞ pg. 24
  Audio Level Indicator ☞ pg. 23
- ② Programme Time Indicators ☞ pg. 28
- ③ Symbolic Mode Indicators

PLAY: FF/REW VARIABLE SHUTTLE SEARCH:	▷	STILL: SLOW:	▷▥
		RECORD:	○
		RECORD PAUSE:	○▥
AUDIO DUBBING:			☼
AUDIO DUBBING PAUSE:			☼▥
INSERT:			▷
INSERT PAUSE:			▷▥
AUDIO DUBBING INSERT:			☼
AUDIO DUBBING INSERT PAUSE:			☼▥

- ④ "Timer" Indicator ☞ pg. 27, 29
- ⑤ S-VHS Indicator ☞ pg. 22
- ⑥ Channel/Clock Display ☞ pg. 8
- ⑦ Tape Speed Indicators ☞ pg. 20
  EP is only for NTSC playback
- ⑧ Instant REVIEW Indicator ☞ pg. 15
- ⑨ Audio Mode Indicator ☞ pg. 17
- ⑩ Tape Remaining Time Indicator ☞ pg. 21
- ⑪ "Cassette Loaded" Mark
- ⑫ VPS/PDC Indicator ☞ pg. 27, 29
- ⑬ VCR Indicator ☞ pg. 21
- ⑭ Counter/Remain Display
- ⑮ Mode Display (L-1, L-2, F-1 or S-1)

REMOTE CONTROL


JVC
VCR TV SAT
AUDIO
TV/VCR
ENTER
1
2
3
4
5
6
7
8
9
0000
AUX
0
START
STOP
DATE
TV PROG
TV PROG
MENU
JOG/SHUTTLE
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
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⑳
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㉞
㉟
㊱

Buttons with a small dot on the left side of the name can also be used to operate your TV ☞ pg 34.

- ① VCR/TV/SAT Switch ☞ pg. 34, 35
- ② TV/VCR Button ☞ pg. 21, 34
- ③ REVIEW Button ☞ pg. 15
- ④ NUMBER Keys ☞ pg. 20, 26
- ⑤ VPS/PDC Button ☞ pg. 27, 29
- ⑥ X Button ☞ pg. 30
  0000 Button ☞ pg. 21
- ⑦ STOP +/– Button ☞ pg. 28
- ⑧ START +/– Button ☞ pg. 28
- ⑨ PROG Button ☞ pg. 26
- ⑩ ◴ ? Button ☞ pg. 30
- ⑪ Rewind [REW] Button ☞ pg. 13, 14
- ⑫ Record Button ☞ pg. 20
- ⑬ Stop Button ☞ pg. 13, 20
- ⑭ △▽ Button ☞ pg. 6
  TV PROG +/– ☞ pg. 34
- ⑮ MENU Button ☞ pg. 9
- ⑯ A/B Code Button ☞ pg. 33
- ⑰ JOG Dial ☞ pg. 14
- ⑱ AUDIO Button ☞ pg. 17
  🔈/🔇 (TV Muting) Button ☞ pg. 34
- ⑲ STANDBY/ON ⏻/I Button ☞ pg. 6
- ⑳ ENTER Button ☞ pg. 34
- ㉑ – – : – – Button ☞ pg. 21
- ㉒ DAILY Button ☞ pg. 27, 29
- ㉓ WEEKLY Button ☞ pg. 27, 29
- ㉔ AUX Button ☞ pg. 37, 38
- ㉕ ◴ Button ☞ pg. 27, 29
- ㉖ DATE +/– Button ☞ pg. 28
- ㉗ TV PROG +/– Button ☞ pg. 20
- ㉘ 30 SEC Button ☞ pg. 15
- ㉙ //// (Auto Tracking) Button ☞ pg. 15
  SP/LP Button ☞ pg. 20
- ㉚ Play Button ☞ pg. 13
- ㉛ Fast Forward [FF] Button ☞ pg. 13, 14
- ㉜ Pause Button ☞ pg. 14
- ㉝ ◁ ▷ Button ☞ pg. 14, 18
  TV ◿ +/–Button ☞ pg. 34
- ㉞ OK Button ☞ pg. 7
- ㉟ JOG/SHUTTLE Button ☞ pg. 14
- ㊱ SHUTTLE Ring ☞ pg. 14

How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets and satellite tuners of JVC and other brands. ☞ pg. 34, 35.

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

NOTES:

- *When inserting the batteries, be sure to insert in the correct directions as indicated under the battery cover.*
- *If the remote control doesn't work properly, remove its batteries, wait a short time, replace the batteries and then try again.*

GENERAL

Power requirement	: AC 220 – 240 V∿, 50/60 Hz
Power consumption	
Power on	: 26 W
Power off	: 5.5 W
Power save (HR-S9500E only)	: 3 W
Temperature	
Operating	: 5°C to 40°C
Storage	: –20°C to 60°C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 437 x 109 x 339 mm
Weight	: 5.0 kg
Format	: S-VHS/VHS PAL standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette
(LP)	: 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal,625 lines 50 fields
Recording system	: DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 250 lines (VHS) 400 lines (S-VHS)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: 21-pin scart connectors : IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1 S-Video connectors: IN x 1, OUT x 1

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	: Frequency synthesized tuner
Channel coverage	: VHF 47 – 89/104 – 300/ 302 – 470MHz UHF 470 – 862MHz
Aerial output	: UHF channels 22 – 69 (Adjustable)
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable, Infrared remote control unit, "R6" battery x 2, S-Video cable, Connector cover (for front panel connectors)

Specifications shown are for SP mode unless otherwise specified.
E.& O.E. Design and specifications subject to change without notice.

Auto Set Up – referring to the display panel

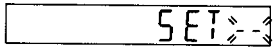
The Auto Set Up function sets the tuner channels, clock, Guide Program numbers and video channel* automatically.

* Useful for RF connection users.

BEFORE YOU START PLEASE MAKE SURE THAT:

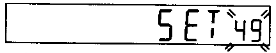
- The TV aerial cable is connected to the ANT.IN jack on the rear panel of the video recorder.
- The video recorder's mains power cord is connected to a mains outlet.
- The video recorder is turned off.
- Load batteries into the remote control.

1 Press ⏻/I (recorder/remote).



2 Press △▽ (remote) to select the international telephone country code.

(Ex.) DEUTSCHLAND is selected.



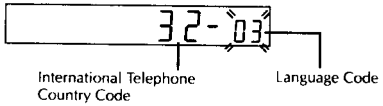
- If you have selected a country code other than 32 (BELGIUM) or 41 (SUISSE), go to step **3**.

International Telephone Country Code

SUISSE	: 41	SUOMI	: 358
ITALIA	: 39	PORTUGAL	: 351
ESPAÑA	: 34	DEUTSCHLAND	: 49
BELGIUM	: 32	NORGE	: 47
NEDERLAND	: 31	SVERIGE	: 46
GREECE	: 30	DANMARK	: 45
OTHERS	: - -	ÖSTERREICH	: 43

- If you have selected 32 (BELGIUM) or 41 (SUISSE), press **OK** (remote) and select the language code by pressing △▽ (remote), then go to step **3**.

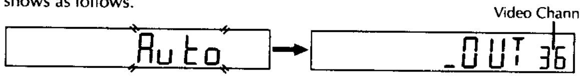
(Ex.) FRANCAIS is selected for BELGIUM



Language Code

ENGLISH	: 01	NEDERLANDS	: 06
DEUTSCH	: 02	SVENSKA	: 07
FRANCAIS	: 03	NORSK	: 08
ITALIANO	: 04	SUOMI	: 09
CASTELLANO	: 05	DANSK	: 10

3 Press **OK** (remote). Do NOT press any button on the video recorder or remote control until the display panel shows as follows.



- If "– –:– –" appears on the display panel, see page 6 of the instructions.

- If you have connected the video recorder to your TV via RF connection, press **OK** to finish the Auto Set Up. To view picture signals from the video recorder, set your TV to the Video Channel.
- If you have connected the video recorder to your TV via AV connection, press **TV PROG** – until the display panel shows "_OUT– –" to set the Video Channel to off, then press **OK** to finish the Auto Set Up. To view picture signals from the video recorder, set your TV to its AV mode.

* *Once you have performed Auto Set Up, even if the recorder's memory backup has expired, the recorder will not perform Auto Set Up again. Perform tuner setting (☞ pg. 50), clock setting (☞ pg. 58) and/or Video Channel setting (☞ pg. 49) as required.*

FOR MORE INFORMATION SEE INSTRUCTIONS/P6

HR-S9500E/EH

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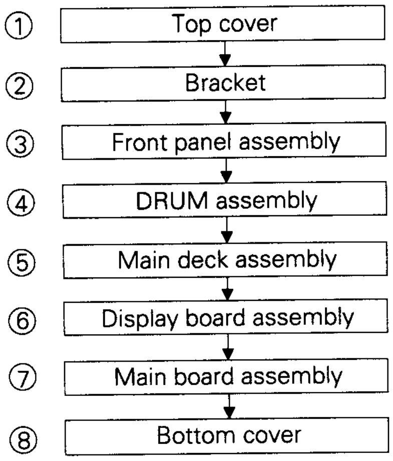
SECTION 1
DISASSEMBLY

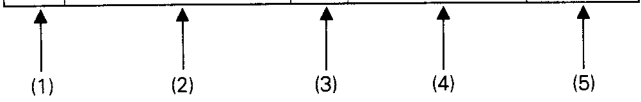
1.1 DISASSEMBLY FLOW CHART

This flowchart lists the disassembling steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally laid.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	3(S1)	<NOTE 1>
②	BRACKET	D2	2(S2)	
③	FRONT PANEL ASSEMBLY	D3	7(L1)	<NOTE 2> <NOTE 3>



(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig.No. showing procedure or part location
(4) Indentification of part to be removed,unhooked,unlocked, released,unpluged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
(5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1), (S2)	
②	BRACKET	D2	2(S3)	
③	FRONT PANEL ASSEMBLY	D3	2(S4),9(L1),WR2, 2(L2),WR1, *CN7191,*CN7192, JACK BOARD	<NOTE 1> <NOTE 2>
④	DRUM ASSEMBLY	D4	3(S5),CN1,CN3301, WR3,WR4,4(L3), (L4),(P1) INERTIA PLATE ROLLER ARM ASSY	<NOTE 2>
⑤	MAIN DECK ASSEMBLY	D5	2(S6),2(S7),WR5 2(L5),*CN4001	<NOTE 3>
⑥	DISPLAY BOARD ASSEMBLY	D6	8(L6), *CN7001, REC SAFETY BOARD (L7)	<NOTE 4>
⑦	MAIN BOARD ASSEMBLY	D7	(S8), 2(S9)	
⑧	BOTTOM COVER	D8	2(S10),4(L8), 7(L9),4(L10)	

<NOTE1>

- Before attaching the Front panel assembly, ensure that the door opener ⓐ is in the lowered position.

<NOTE2>

- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

<NOTE3>

- When it is required to remove the screws (S6) retaining the Main deck assembly, please refer to the "Procedures for Lowering the Cassette holder assembly"(See on pages 1-3).
- The Main deck assembly is also retained by two spacers on the Main board. Therefore, to remove the Main deck assembly, insert radio pliers or a similar tool from the main deck side and pinch the two hooks of the spacers while removing.
- When attaching the Main deck assembly, be careful not to damage the sensors and switches on the Main board (D3001: LED, Q3001: Start sensor, Q3002: End sensor S3003 : S cassette switch).

<NOTE4>

- The REC safety board assembly is attached to the Display board assembly. It is therefore necessary to remove the REC safety board assembly before removing the Display board assembly.
- When inserting the flat wire into the connector, be careful not to mistake the positioning of its electrodes.

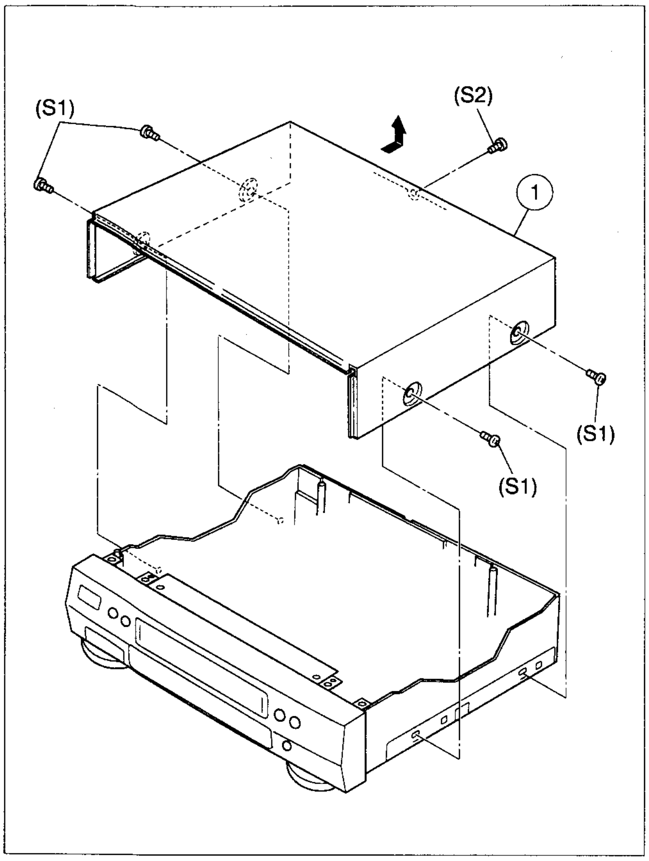


Fig. D1

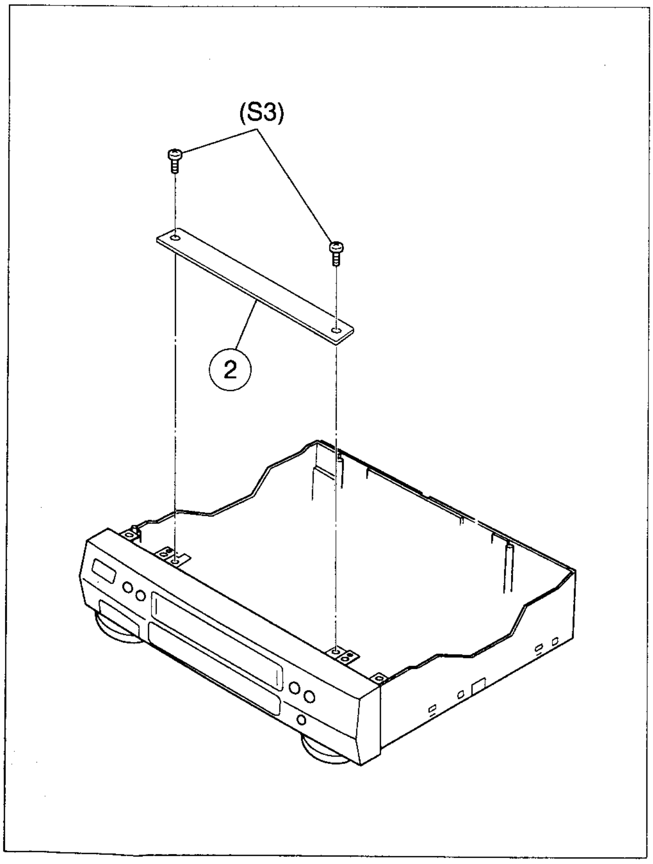


Fig. D2

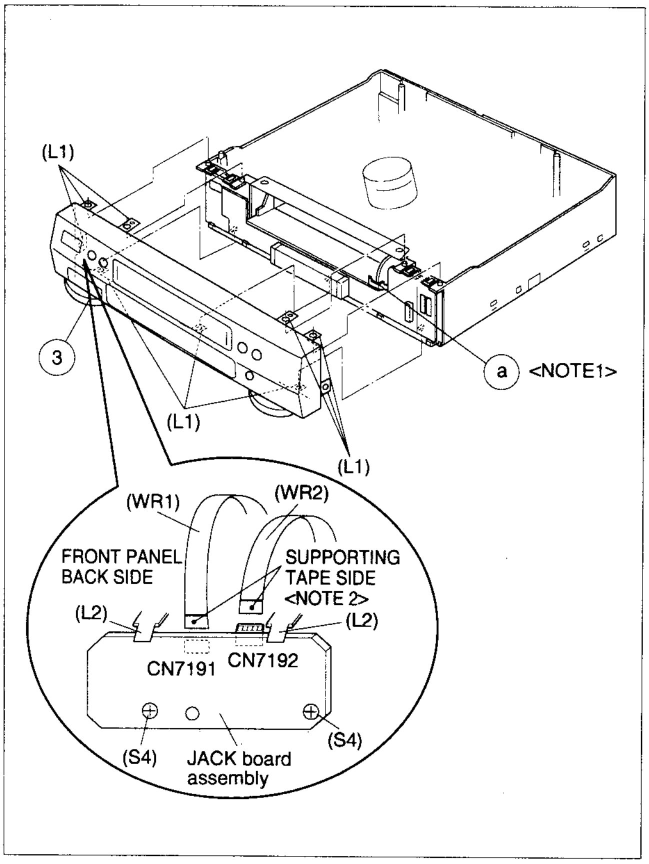

(L1)
3
(L1)
(L1)
a
<NOTE1>
(WR1)
(WR2)
FRONT PANEL BACK SIDE
SUPPORTING TAPE SIDE <NOTE 2>
(L2)
(L2)
CN7191
CN7192
(S4)
(S4)
JACK board assembly

Fig. D3

NOTE: When installing the DRUM assembly, secure the screw (S5) in the order of A. B. C.

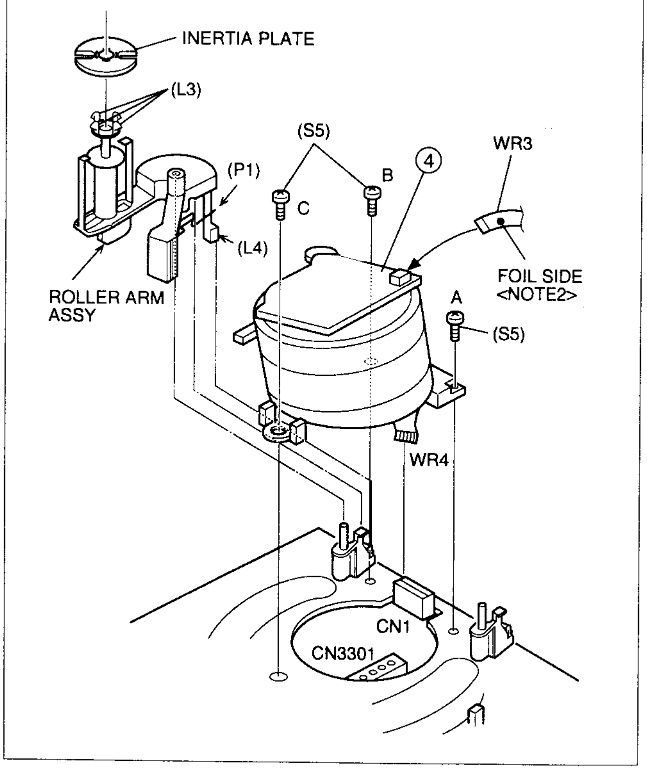

INERTIA PLATE
(L3)
(S5)
(P1)
B
C
4
WR3
(L4)
ROLLER ARM ASSY
FOIL SIDE <NOTE2>
A
(S5)
WR4
CN1
CN3301

Fig. D4

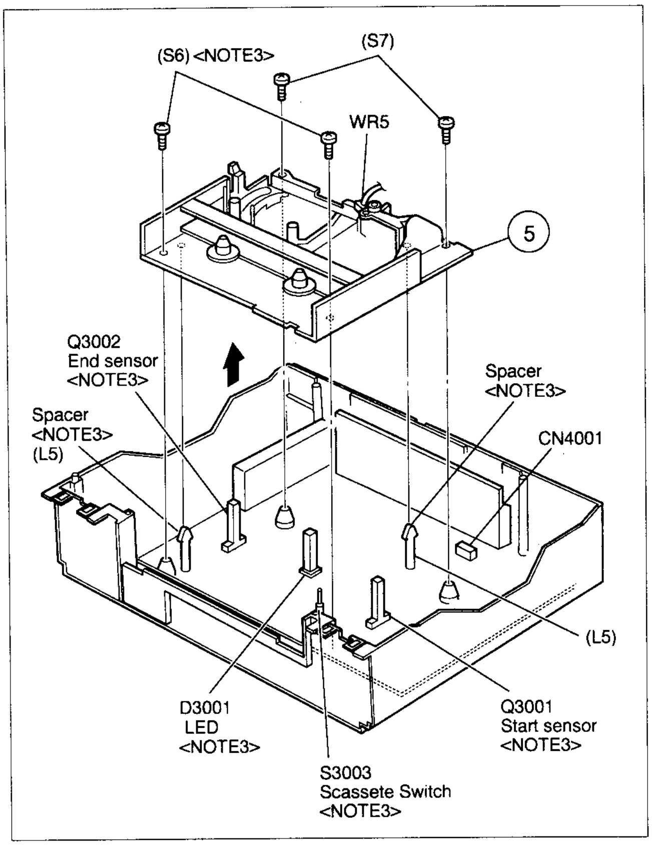

(S6) <NOTE3>
(S7)
WR5
5
Q3002
End sensor
<NOTE3>
Spacer
<NOTE3>
(L5)
Spacer
<NOTE3>
CN4001
(L5)
D3001
LED
<NOTE3>
Q3001
Start sensor
<NOTE3>
S3003
Scassete Switch
<NOTE3>

Fig. D5

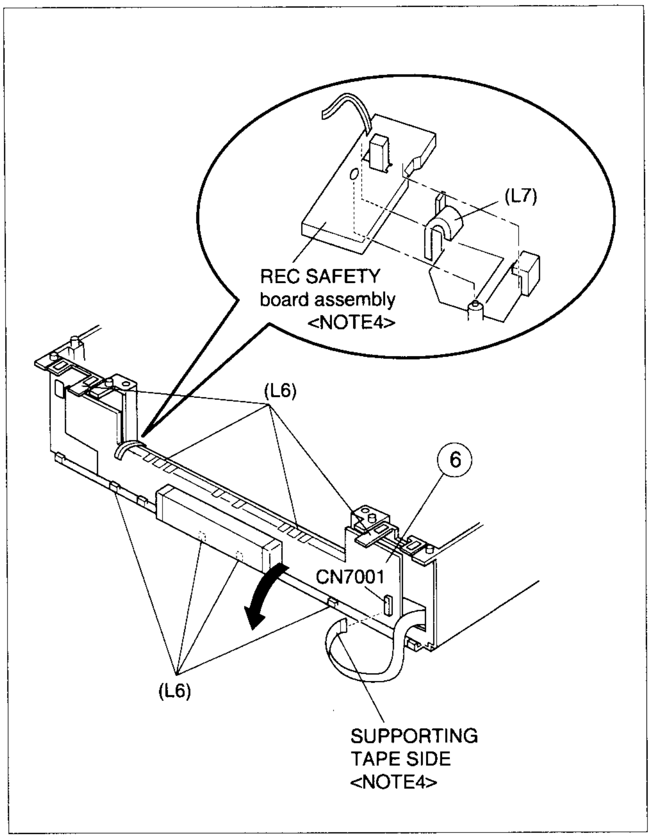

(L7)
REC SAFETY
board assembly
<NOTE4>
(L6)
6
CN7001
(L6)
SUPPORTING
TAPE SIDE
<NOTE4>

Fig. D6

Procedures for Lowering the Cassette holder assembly

As the mechanism of this unit is integrated with the Housing assembly, the holder must be lowered and the two bolts unscrewed when removing the Main deck assembly.

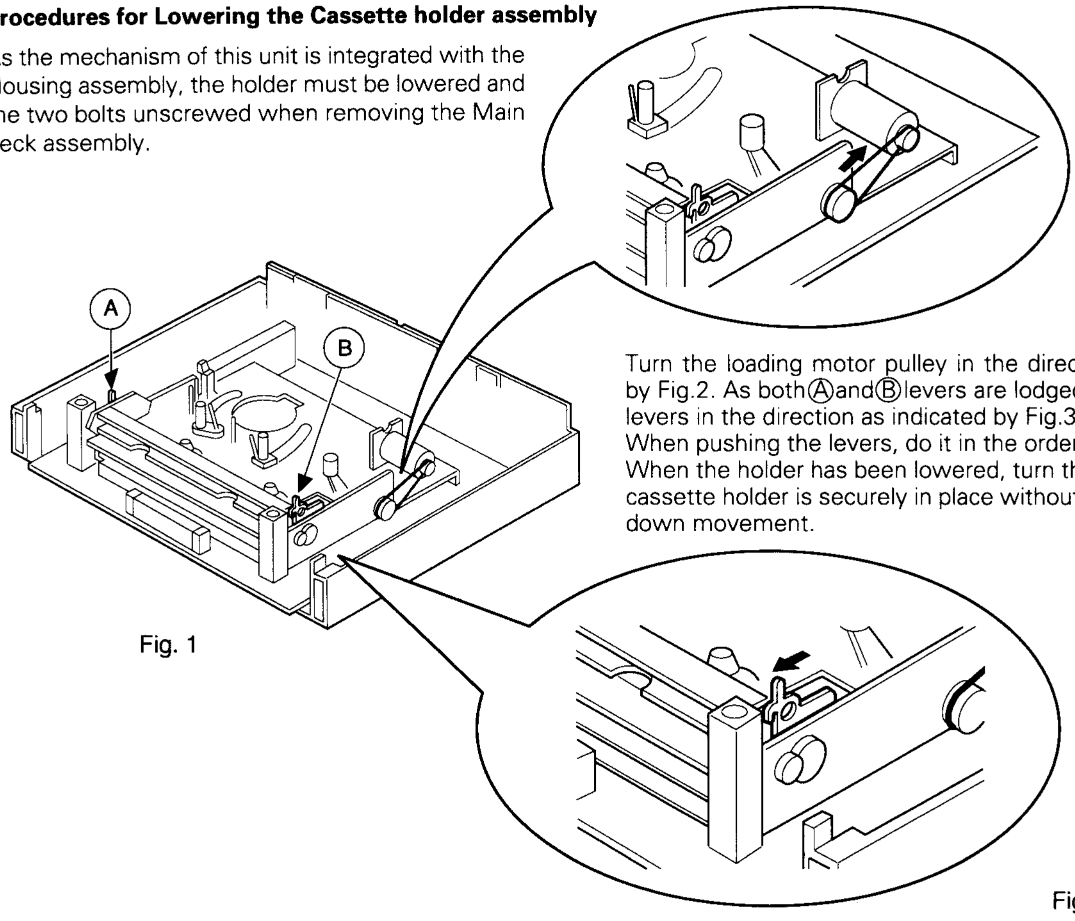


Fig. 2

Fig. 1

Fig. 3

Turn the loading motor pulley in the direction as indicated by Fig.2. As both Ⓐ and Ⓑ levers are lodged twice, push the levers in the direction as indicated by Fig.3 to release them. When pushing the levers, do it in the order of Ⓐ,Ⓑ,Ⓑ,Ⓐ. When the holder has been lowered, turn the pulley until the cassette holder is securely in place without allowing any up/down movement.

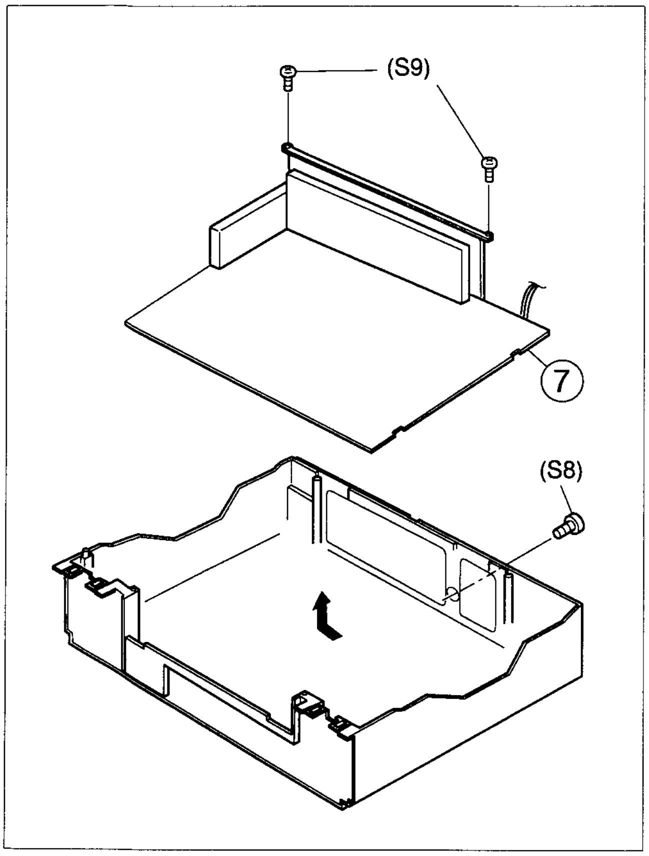


Fig. D7

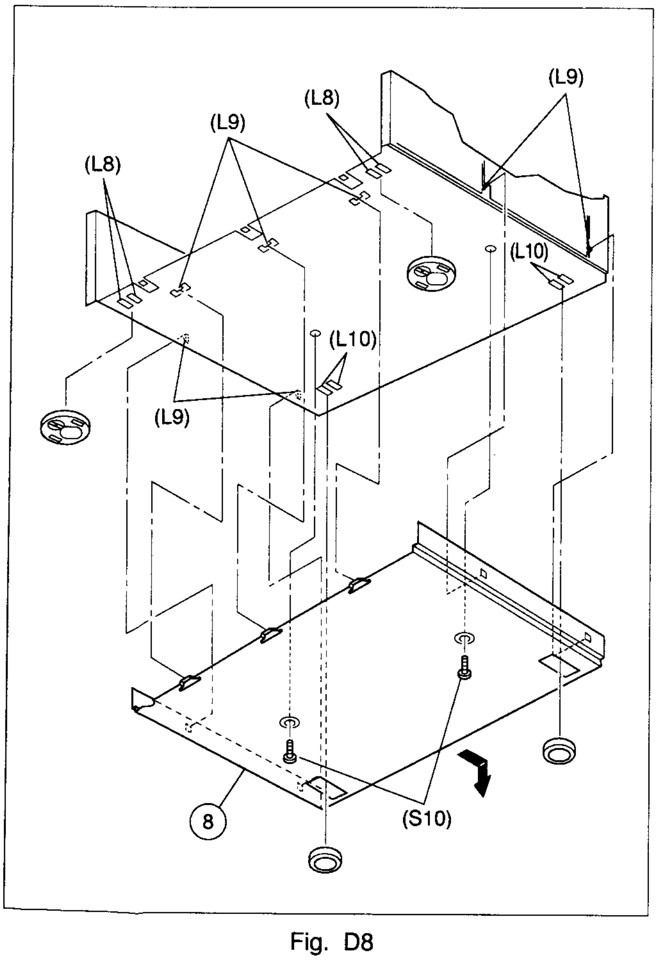


Fig. D8

1.4 SERVICE POSITION

In order to facilitate diagnosis and the repair of the Main deck assembly, this unit is constructed so as to allow the Main deck and the Main board assemblies to be removed together from the Chassis assembly.

1.4.1 How to take out the Mechanism and Main board assemblies

(1) Remove the Top cover, Bracket, Front panel assembly and JACK board assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD. Take care not to pull the drum wire (Fig.D4) from CN1).

(2) Lower the cassette holder, and make the preparations required in order to remove the screws from the Main deck assembly (Refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD).

(3) Take out 2 screws Ⓐ and 2 screws Ⓑ as shown in Fig. 1-4-1.

(4) Take out 2 screws Ⓒ and take out 1 screw Ⓓ to install the Bottom cover (See Fig. 1-4-1).

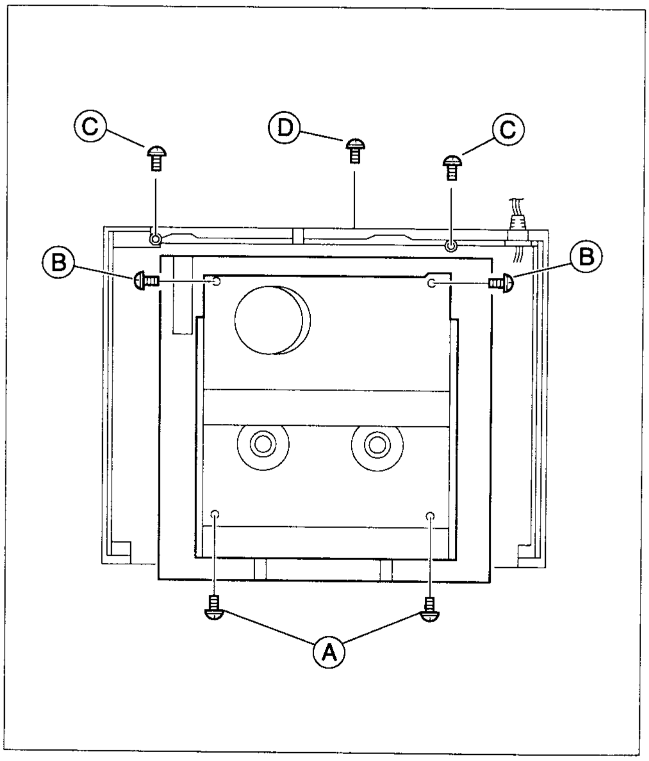


Fig. 1-4-1

(5) While holding the edge of the Main board, and remove the Main board and Main deck assemblies together. At this stage be careful of the power cord and prongs of the jacks on the back side (See Fig. 1-4-2).

(6) Remove the Display board assembly and REC safety board (See 1.3 DISASSEMBLY/ASSEMBLY METHOD), then place them on the front side of the Main deck assembly and Main board assembly which have been deassembled at the procedure (6) and place the Jack board on the left side of the Main deck assembly and Main board assembly. Then connect the flat wires into CN7001 of the Diaplay board assembly, CN7191 and CN7192 of the JACK board assembly (See Fig. 1-4-3).

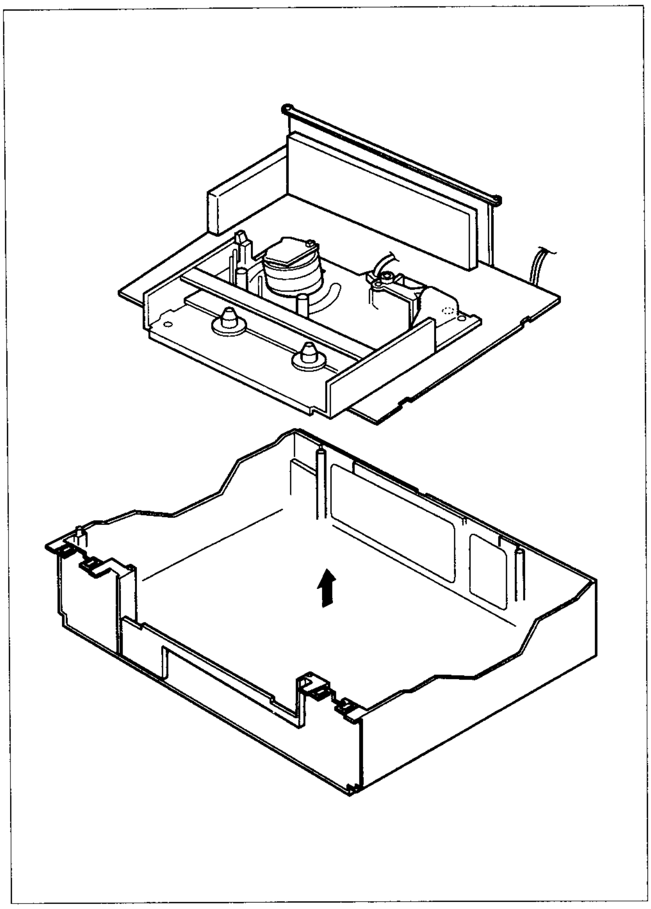


Fig. 1-4-2

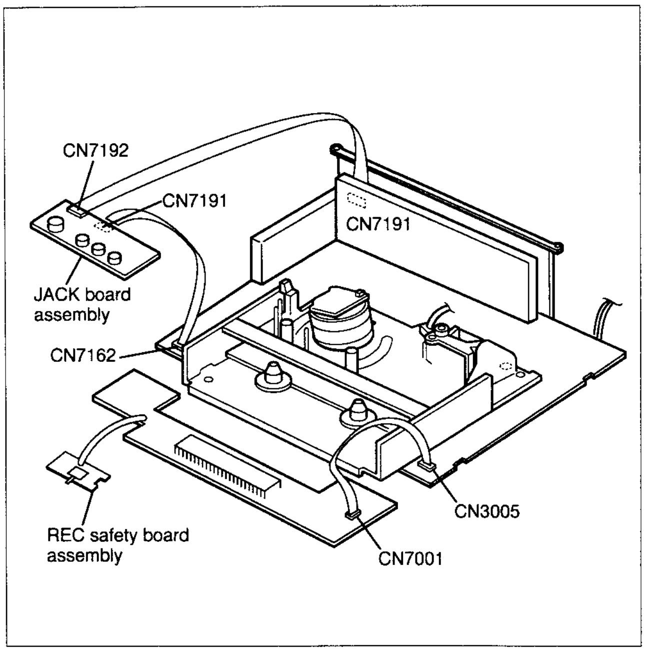


Fig. 1-4-3

(7) Connect the power cord to the wall socket, and lift the cassette holder.
(Before turning on the power make sure that there is nothing which may produce a short circuit, such as faulty soldering.)

Note: *When carrying out diagnosis and repair of the Main board assembly in the service position, be sure to ground both the Main board and the Main deck assemblies.*
If they are improperly grounded, there may be noise on the playback picture or the FDP counter display may move even when the mechanism is kept in an inoperative status.

1.4.2 Precautions for cassette loading in the "SERVICE POSITION"

The REC safety board assembly detects cassette loading as well as cassette tabs. Therefore, after the assembly has been removed in the "SERVICE POSITION", it is required to set the switch manually on the REC safety board assembly when a cassette is loaded.

1.4.3 Cassette loading and ejection methods in the "SERVICE POSITION"(See Fig. 1-4-3).

(1) Insert a cassette halfway in the Cassette holder assembly.
(2) Set the switch on the REC safety board assembly to ON (by pressing the switch).
(3) As soon as the cassette starts to be loaded, set the switch on the REC safety assembly to OFF (by releasing the switch).
(4) Now the desired operation (recording, playback, fast forward, rewind, etc.) is possible in this status (the status shown in Fig. 1-4-3).

NOTES:
- *When performing diagnostics of the tape playback or recording condition in the "SERVICE POSITION", enter the desired mode before turning the set upside down, and do not change the mode during diagnostics while the set is placed upside down. If you want to switch the mode, turn the set to the normal position (the status shown in Fig. 1-4-3).*
- *In the "SERVICE POSITION", the cassette tabs cannot be detected and recording becomes possible even with a cassette with broken tabs such as the alignment tape. Be very careful not to erase important tapes.*

(5) The switch on the REC safety board assembly does not have to be operated when ejecting a tape. But be sure to turn the set to the normal position before ejecting the tape.

1.5 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.5.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Connect TPGND and TP7001(TEST) on the Display board assembly with a jump wire.
(3) Connect VCR to AC.
(4) Set the power switch to ON.
(5) With lock levers ⒶⒷ on the left and right of the Cassette holder assembly pulled toward the front, slide the holder in the same direction as the cassette insertion direction. (For the positions of lock levers ⒶⒷ, refer to the "Procedures for Lowering the Cassette holder assembly" on pages 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD.)
(6) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.

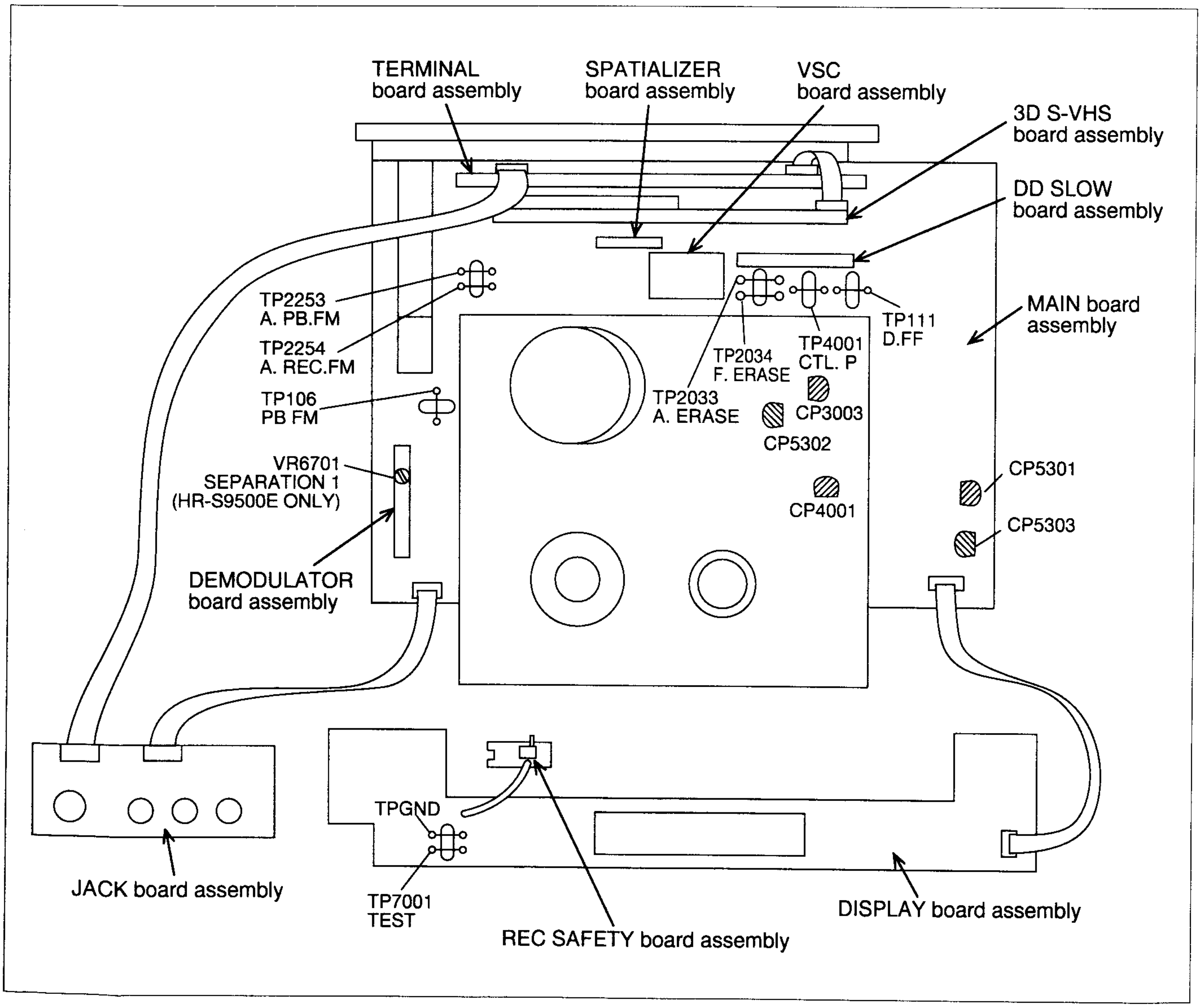

TERMINAL board assembly
SPATIALIZER board assembly
VSC board assembly
3D S-VHS board assembly
DD SLOW board assembly
MAIN board assembly
TP2253 A. PB.FM
TP2254 A. REC.FM
TP106 PB FM
VR6701 SEPARATION 1 (HR-S9500E ONLY)
DEMODULATOR board assembly
TP2034 F. ERASE
TP2033 A. ERASE
TP4001 CTL. P
TP111 D.FF
CP3003
CP5302
CP4001
CP5301
CP5303
TPGND
TP7001 TEST
JACK board assembly
REC SAFETY board assembly
DISPLAY board assembly

Fig. 1-5-1

1.6 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.6.1 How to display record of an emergency faults

Note: *Put the unit into A mode by using the VCR remote control. (When it is in B mode, the preset remote control codes are not accepted.)*

(1) Press "N" button of the presetting unit more than 2 seconds and the two previous emergency faults are shown in the LED or FDP.
(2) Press "N" button of the presetting unit again to return to the normal mode.

[Example] E : 01 : 03
03 — Emergency fault before last
01 — Emergency fault of the last time

[Example] E : — — : — — ← No record of emergency

1.6.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

1.6.2 Detail of emergency faults

EMG DATA	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	TU REEL FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent. (for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 06	CAPSTAN FG input is absent. (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF
E : 08	Initialized action of DD (Dynamic Drum) is not complete for less than 4 seconds.	Connect VCR to AC	STOP
E : 09	DD drive motor is not rotate for more than 2.5 seconds.	on TIME SCAN	STOP

Table 1-6-1 EMERGENCY FAULTS

1.7 SYSCON CIRCUIT

1.7.1 Syscon CPU pin function (IC3001) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	IND(L)	IN	AUDIO INPUT(LCH) FOR THE FDP AUDIO INDICATOR
2	IND(R)	IN	AUDIO INPUT(RCH) FOR THE FDP AUDIO INDICATOR
3	PERI 1S	IN	INPUT FOR THE TERMINAL SLID SW POSI IN THE SAT MODE
4	INDEX	IN/OUT	DETECTION SIGNAL FOR SERVO INDEX
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 KHz)
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	RESET	-	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	PS SECAM(H)	-	NC
15	LOCK(L)	IN	(TUNING PLL LOCK DETECT:L)
16	SYNC DET	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
17	PWER DOWN	IN	DETECTION SIGNAL FOR POWER DOWN
18	SQ REC(L)	OUT	S-VHS ET REC MODE CONTROL (REC:L)
19	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
20	R.PAUSE	IN	REMOTE PAUSE CONTROL
21	SECAM DET	-	NC
22	NC	-	NC
23	A.WIDE	OUT	SPATIALIZER CTL
24	A.EFFECT	OUT	SPATIALIZER CTL
25	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE ON:H)
26	TS BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO SUB
27	TS CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO SUB
28	TM CLOCK	OUT	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
29	TM CS	OUT	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM BUSY	IN	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	TM DATA0	IN/OUT	DATA ON THE BUS LINE
32	TM DATA1	IN/OUT	DATA ON THE BUS LINE
33	TM DATA2	IN/OUT	DATA ON THE BUS LINE
34	TM DATA3	IN/OUT	DATA ON THE BUS LINE
35	TM DATA4	IN/OUT	DATA ON THE BUS LINE
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE
37	TM DATA6	IN/OUT	DATA ON THE BUS LINE
38	TM DATA7	IN/OUT	DATA ON THE BUS LINE
39	H.REC(H)	OUT	HIFI AUDIO REC MODE CONTROL SIGNAL (REC:H)
40	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL(REC:H)

Table 1-7-1 SYSCON CPU pin function(1/2)

1.7.2 Syscon CPU pin function (IC3001) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	MS_RESET	OUT	RESET SIGNAL FOR THE MECHANISM CONTROL IC(IC3301)
42	CNR_ON(H)	OUT	CNR ON SIGNAL(ON:H)
43	TU DATA	OUT	TUNING DATA
44	D_MUTE(H)	OUT	TUNER MUTE SIGNAL (MUTE:H)
45	SECAM TU ON(L)	OUT	TUNER "L" SYSTEM MODE:H
46	TU CE	OUT	CHIP ENABLE OF THE TUNER UNIT
47	TU CLOCK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
48	DK(H)/FORCE(L)	OUT	TUNER SYSTEM “DK” MODE : H
49	SECAM VL(H)	OUT	TUNER SYSTEM “L” MODE : L
50	RCIN	IN	DATA INPUT OF THE REMOTE CONTROL UNIT
51	NTSC(H)	OUT	TUNER SYSTEM "NTSC" MODE:H
52	FULL_E_ON(H)	OUT	REC MODE:H
53	V.SYNC	IN	INPUT FOR THE VIDEO SYNC
54	P.SAVE(L)	OUT	POWER SAVE:L
55	CCIR(L)	OUT	EXCEPT FOR NTSC:L
56	OSD CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
57	S2-OUT	OUT	SERIAL DATA TRANSFER OUTPUT FROM THE FDP DRIVER TO THE ON-SCREEN IC
58	S2-IN	IN	SERIAL DATA TRANSFER OUTPUT FROM THE ON-SCREEN IC TO FDP DRIVER
59	S2-CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FROM THE FDP DRIVER TO THE ON-SCREEN IC
60	INSERT(L)	OUT	SIMPLE INSERT MODE:L
61	STB	OUT	PERMISSION SIGNAL FOR CLOCK OUTPUT (STROBE SIGNAL)
62	SPH/PSL	OUT	SECAM → PAL CONVERT:H
63	VCC	-	SYSTEM POWER
64	SEC TR(H)	OUT	SECAM SPECIAL PLAYBACK:H
65	TITLE REC	-	NC
66	NC	-	NC
67	CTL_CLOCK	IN	LINEAR TIME COUNTER INPUT
68	SECAM(H)	OUT	COLOR SYSTEM SECAM:H
69	I2C DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR EE PROM
70	I2C CLOCK	IN/OUT	SERIAL DATA TRANSMISSION CLOCK FOR EE PROM
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SHTLB	IN	INPUT FOR THE JOG SHUTTLE
74	SHTL(L)/SHTLA	IN	INPUT FOR THE JOG SHUTTLE
75	JSA	IN	INPUT FOR THE JOG SHUTTLE
76	JSB	IN	INPUT FOR THE JOG SHUTTLE
77	RF AGC	-	NC
78	REC LEVEL V	OUT	OUTPUT FOR REC LEVEL CTL
79	AFT/S.CURVE	IN	TUNING CHECK
80	SCRAMBLE(H)	IN	INPUT FOR 8-PIN OF AV2

Table 1-7-2 SYSCON CPU pin function(2/2)

1.7.3 Syscon CPU pin function (IC3301) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	A.ENV/ND(L)	IN	INPUT THE AVERAGE OF FMA PLAYBACK SIGNAL-A (AUTO TRACKING AND FMA NON-RECORD DETECTION)
2	VIDEO ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
3	6.5H DET	IN	6.5H DETECTION SIGNAL FOR SERVO CIRCUIT
4	RECSF	IN	DETECTION SIGNAL FOR REC SAFETY/CASSETTE INSERT SWITCH
5	AVSS	-	GND FOR ANALOG CIRCUIT
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768 KHz)
8	X1	-	TIMER CLOCK (32.768 KHz)
9	VSS	-	GND
10	OSC1	-	MAIN SYSTEM CLOCK (10 MHz)
11	OSC2	-	MAIN SYSTEM CLOCK (10 MHz)
12	MS_RESET	-	RESET TERMINAL (RESET ON:L)
13	(NMI)	-	NC
14	LSC	IN	MECHANISM MODE DETECT SWITCH (C)
15	LSB	IN	MECHANISM MODE DETECT SWITCH (B)
16	LSA	IN	MECHANISM MODE DETECT SWITCH (A)
17	RAE OUT	OUT	RAE TERMINAL FOR PAUSE OUT
18	C/M E06	OUT	SPEED CONTROL FOR CAP MOTOR
19	S.SENS	IN	START SENSOR
20	E.SENS	IN	END SENSOR
21	I2C CLOCK	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
22	TU FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
23	SP FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
24	CTL CLOCK	IN	CONTROL PULSE INPUT
25	I2C DATA	IN/OUT	I/O DATA FOR MEMORY IC
26	LCM1	OUT	MODE MOTOR DRIVE CONTROL
27	LCM2	OUT	MODE MOTOR DRIVE CONTROL
28	LCM3	OUT	MODE MOTOR DRIVE CONTROL
29	TM CS	IN	CHIP SELECT SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
30	TM CLOCK	IN	CLOCK SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
31	SLOW P	OUT	MEMORY TIMING CONTROL IN THE SLOW MODE
32	LP SHORT(H)	-	NC
33	SP SHORT(H)	-	NC
34	TM DATA7	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
35	TM DATA6	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
36	TM DATA5	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
37	TM DATA4	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
38	TM DATA3	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
39	TM DATA2	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
40	TM DATA1	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL

Table 1-7-3 SYSCON CPU pin function(1/2)

1.7.4 Syscon CPU pin function (IC3301) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	TM DATA0	IN/OUT	DATA ON THE BUS LINE FROM TIMER TO M-CTL
42	TM BUSY	OUT	BUSY SIGNAL ON THE BUS LINE FROM TIMER TO M-CTL
43	N REC START(H)	OUT	NORMAL AUDIO SOUND RECORDING START
44	H REC START(L)	OUT	HIFI AUDIO SOUND RECORDING START
45	VPCTL	OUT	"V.PULSE CONTROL, V COMPENSATION DURING SPECIAL PLAYBACK"
46	P.CTL(H)	OUT	CONTROL SIGNAL FOR SW POWER SUPPLY
47	EE(L)	OUT	EE/PB CONTROL (EE MODE:L)
48	FLY E ON(H)	OUT	FLYING ERASE CONTROL
49	VSC CLOCK	OUT	SERIAL DATA TRANSFER CLOCK OUTPUT FOR VSC IC
50	VSC DATA	OUT	SERIAL DATA OUTPUT FOR VSC IC
51	R-Y REV	OUT	D.FF TIMING CONTROL SIGNAL FOR SPECIAL PLAYBACK
52	CTL C/D	IN	DETECTION SIGNAL FOR CONTROL PULSE MODE/TAPE RUNNING/BLANK
53	DDFG	IN	DYNAMIC DRUM FG INPUT
54	DDSPDCTL	OUT	DYNAMIC DRUM SPEED CONTROL
55	DDCREV	OUT	DYNAMIC DRUM CONTROL(REVERS)
56	DDCFWD	OUT	DYNAMIC DRUM CONTROL(FORWARD)
57	VIDEO DATA	OUT	TRI-R DATA
58	SP(L)	OUT	SP MODE:L
59	VIDEO CLK	OUT	TRI-R CLK
60	E.P.CTL/IP ON(H)	OUT	VIDEO SYSTEM CTL IN THE BEST MODE/IP CTL
61	V.UP(H)	OUT	HIGH SPEED FF/REW TURBO SEARCH:H
62	TRICK	OUT	SPECIAL PLAYBACK:H
63	VCC	-	SYSTEM POWER
64	SLOW_REV	OUT	PRO SLOW REV(H)
65	1/2_EP/3.58NTSC	OUT	PRO SLOW CTL
66	S_DATA	OUT	SERVO SERIAL DATA OUTPUT
67	CAP REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
68	DUTY I/O	IN/OUT	DETECTION SIGNAL FOR INDEX DATA
69	CAP FG	IN	DETECTION SIGNAL FOR MODE/TAPE RUNNING/BLANK
70	PAUSE(L)	OUT	STOP CONTROL SIGNAL FOR CAPSTAN MOTOR
71	D.FF	IN	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
72	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
73	SCASS	IN	DETECTION SIGNAL FOR S-VHS CASSETTE
74	SB-G	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
75	DRUM V	OUT	VOLTAGE CONTROL SIGNAL FOR DRUM MOTOR DRIVE
76	CAP V	OUT	VOLTAGE CONTROL SIGNAL FOR CAPSTAN MOTOR SPEED
77	DD ABS	IN	DYNAMIC DRUM POSITION DETECT
78	S(H)	OUT	S-VHS MODE:H
79	HEAD.SEL	OUT	HEAD SELECT (EP HEAD:H/SP HEAD:L)
80	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY

Table 1-7-4 SYSCON CPU pin function(2/2)

SECTION 2
MECHANISM ADJUSTMENT

2.1 BEFORE STARTING REPAIR AND ADJUSTMENT

2.1.1 Precautions

(1) Unplug the power cable of the main unit before using your soldering iron.
(2) Take care not to cause any damage to the conductor wires when plugging and unplugging the connectors.
(3) Do not randomly handle the parts without identifying where the trouble is.
(4) Exercise enough care not to hurt yourself, especially your finger nails, during the repair work.
(5) When installing the front panel assembly, be sure to hook the lug on the back side of cassette door to the door opener of the cassette holder. If this operation is neglected it will not be possible to remove the cassette when ejecting because the housing door cannot be opened.

2.1.2 Checking for Proper Mechanical Operations

Enter the mechanism service mode when you want to operate the mechanism when no cassette is loaded. (See 1.5 MECHANISM SERVICE MODE)

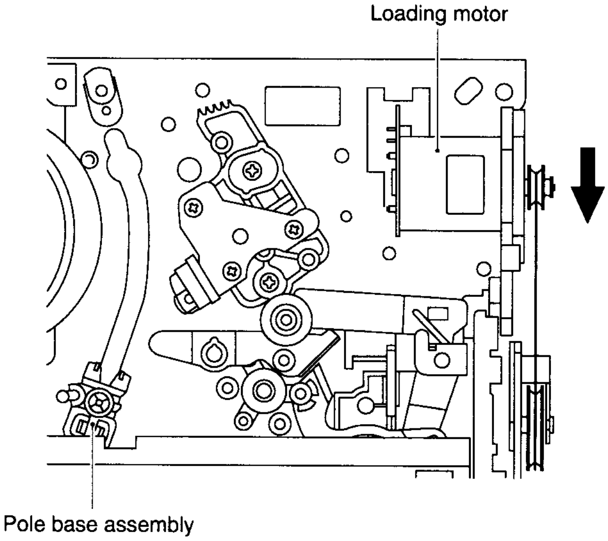


Fig. 2-1-1

2.1.3 Manually Removing the Cassette Tape

1. In case of electrical failures

If you cannot remove the cassette tape which is loaded because of any electrical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, bracket and front panel assembly. (See 1.3 DISASSEMBLY/ASSEMBLY METHOD)
(2) Unload the cassette by manually turning the unloading motor of the main deck assembly toward the front. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig.2-1-1)
(3) Bring the pole base assembly (on the supply or take-up side) to a pause when it reaches the position where it is hidden behind the cassette tape.
(4) Move the top plate toward the drum while holding down the lug Ⓐ of the bracket retaining the top plate. Likewise hold part Ⓑ down and remove the top plate.
The spring plate Ⓒ is then brought under the cassette lid. Then remove the top plate by pressing the whole cassette tape down. (Note 1) (See Fig.2-1-2).
(5) Remove the cassette tape by holding both the slackened tape and the cassette lid.
(6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

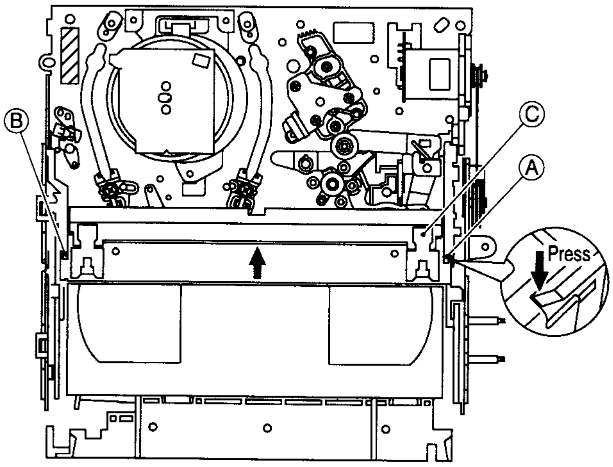


Fig. 2-1-2

Note: *The spring plate of the top plate is sharp-edged. Take care not to hurt yourself.*

2. In case of mechanical failure

If you cannot remove the cassette tape which is loaded because of any mechanical failure, manually remove it by taking the following steps.

(1) Unplug the power cable and remove the top cover, bracket and front panel assembly (See 1.3 DISASSEMBLY/ASSEMBLY METHOD).

(2) While keeping the tension arm of the main deck assembly free from tension, pull the tape on the pole base assembly out of the guide roller (on the supply or take-up side) (See Fig.2-1-3).

(3) Remove the top plate as done in Step (4) of "1 In case of electrical failures" and remove the guide pole cap at the same time. (See Fig.2-1-4).

(4) While lifting the cassette tape lid, hold the cassette tape case and pinch roller by the fingers and move them toward the loading motor to relieve pressure on the tape. Then remove the tape while taking the cassette case out of the cassette holder. (See Fig.2-1-4).

(5) Re-place the guide pole cap and take up the slack of the tape into the cassette.

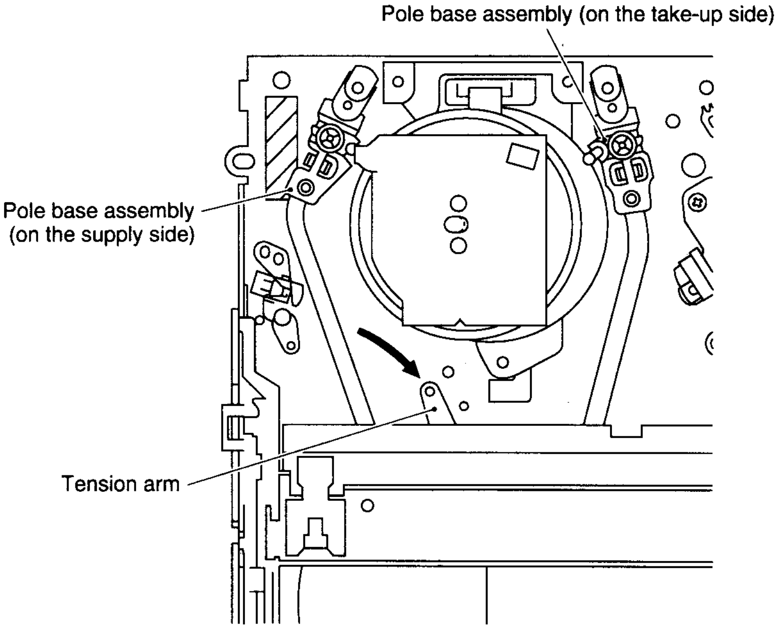

Pole base assembly (on the take-up side)
Pole base assembly (on the supply side)
Tension arm

Fig. 2-1-3

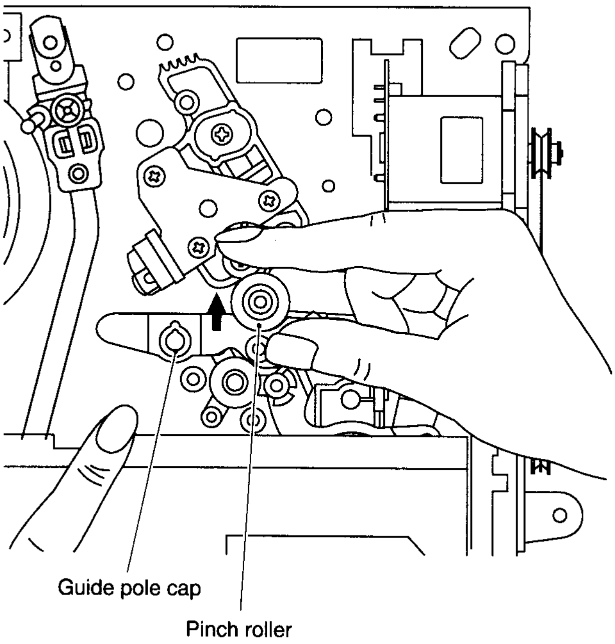

Guide pole cap
Pinch roller

Fig. 2-1-4

2.1.4 Jigs and Tools Required for Adjustment

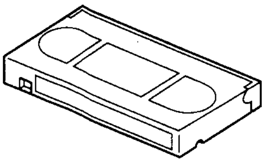
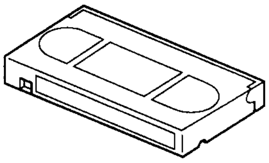
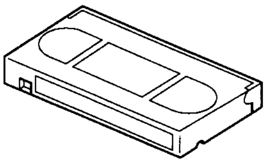
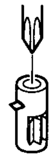
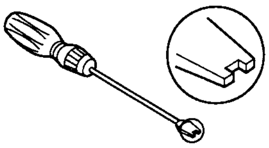
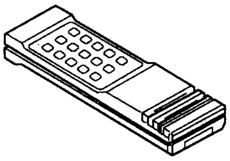
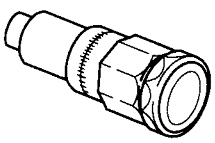
Alignment tape (SP) MHPE	Alignment tape (LP) MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head position bit PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Torque gauge PUJ48075-2	
			

Table 2-1-1 Jigs and tools required for adjustment

2.1.5 Maintenance and Inspection

1. Location of major mechanical parts

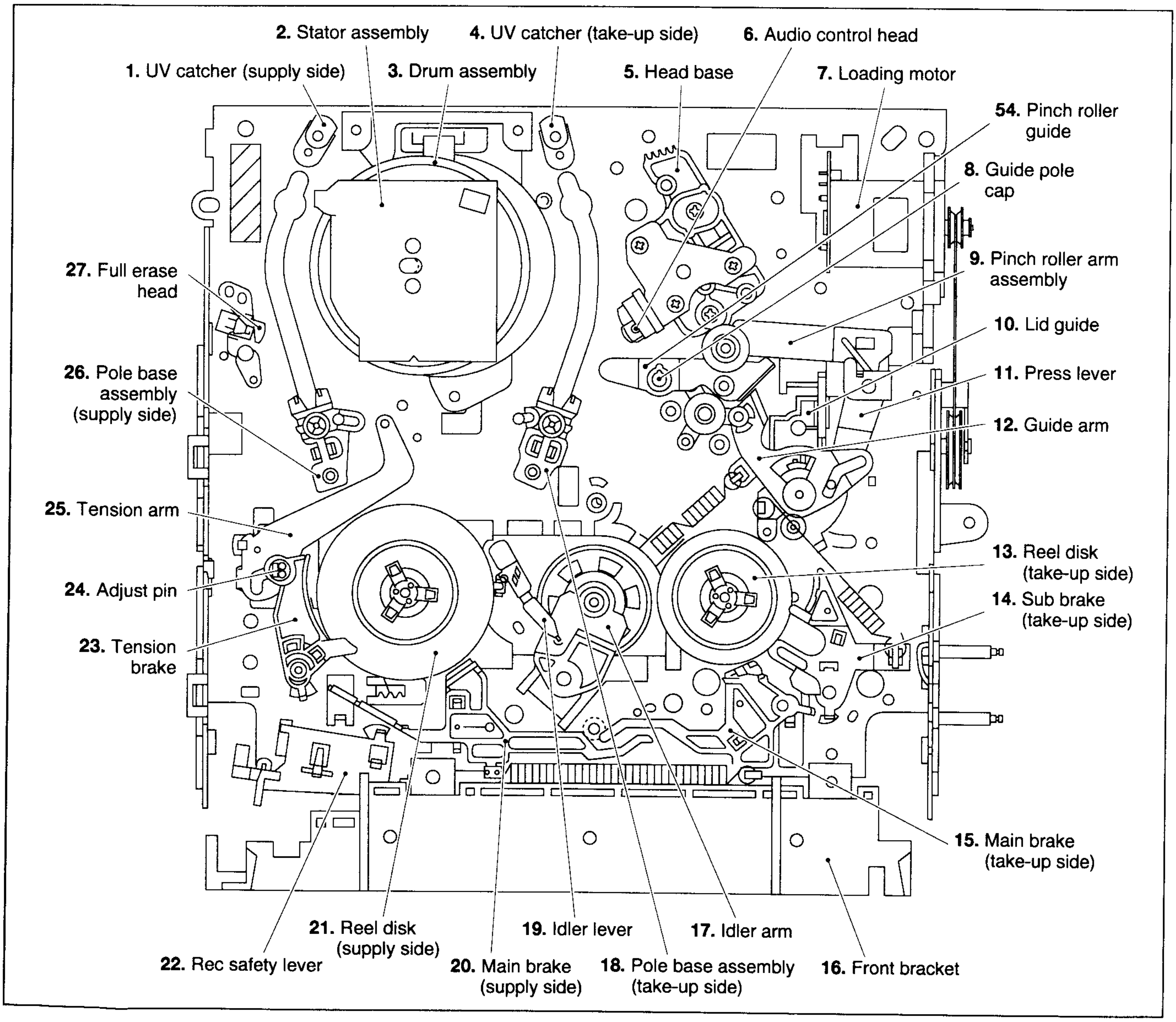

2. Stator assembly
4. UV catcher (take-up side)
6. Audio control head
1. UV catcher (supply side)
3. Drum assembly
5. Head base
7. Loading motor
54. Pinch roller guide
8. Guide pole cap
9. Pinch roller arm assembly
10. Lid guide
11. Press lever
12. Guide arm
13. Reel disk (take-up side)
14. Sub brake (take-up side)
15. Main brake (take-up side)
27. Full erase head
26. Pole base assembly (supply side)
25. Tension arm
24. Adjust pin
23. Tension brake
21. Reel disk (supply side)
22. Rec safety lever
19. Idler lever
20. Main brake (supply side)
17. Idler arm
18. Pole base assembly (take-up side)
16. Front bracket

Fig. 2-1-5 Main deck top side

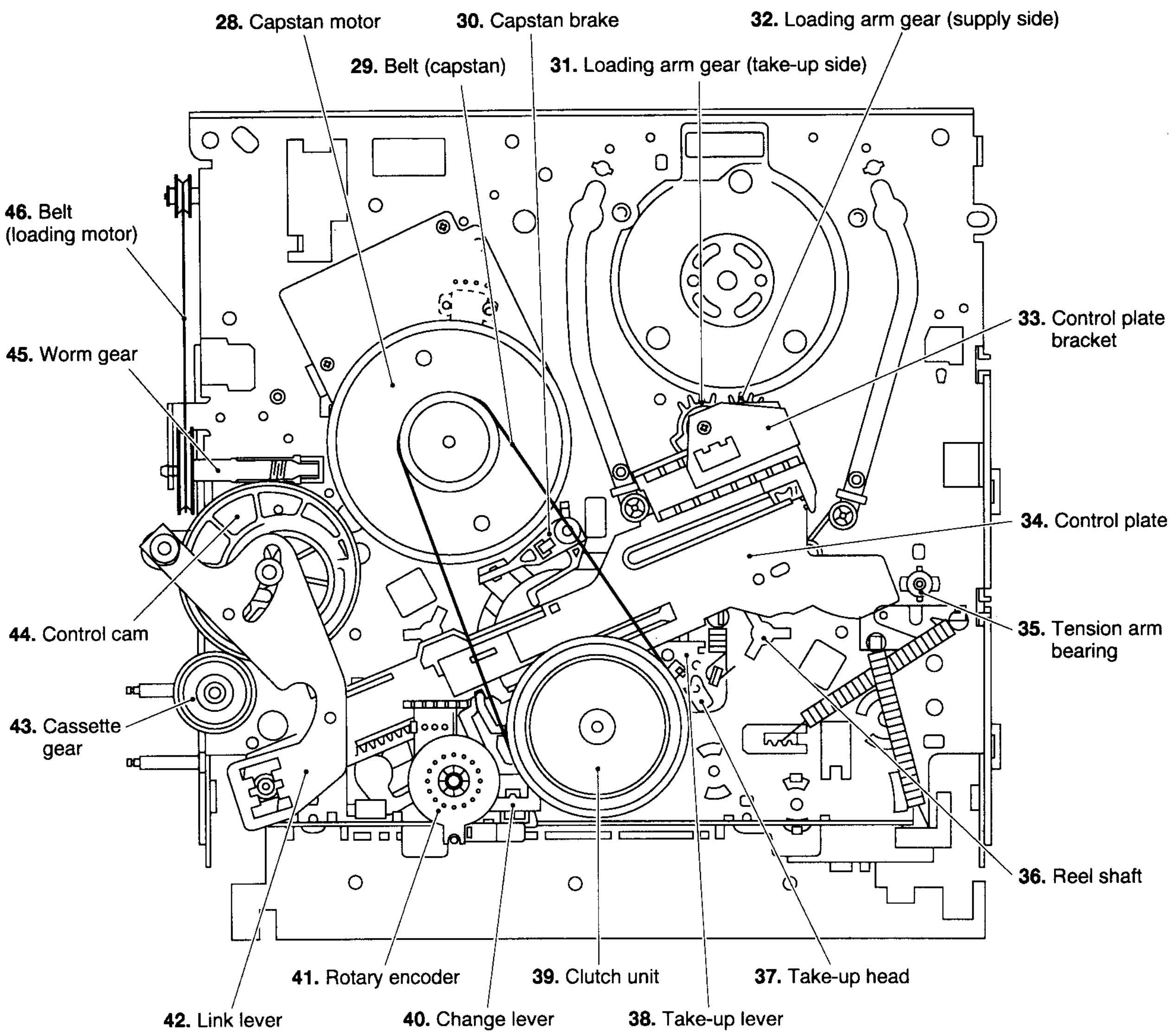

28. Capstan motor
30. Capstan brake
32. Loading arm gear (supply side)
29. Belt (capstan)
31. Loading arm gear (take-up side)
46. Belt (loading motor)
45. Worm gear
33. Control plate bracket
34. Control plate
35. Tension arm bearing
44. Control cam
43. Cassette gear
36. Reel shaft
41. Rotary encoder
39. Clutch unit
37. Take-up head
42. Link lever
40. Change lever
38. Take-up lever

Fig. 2-1-6 Main deck bottom side

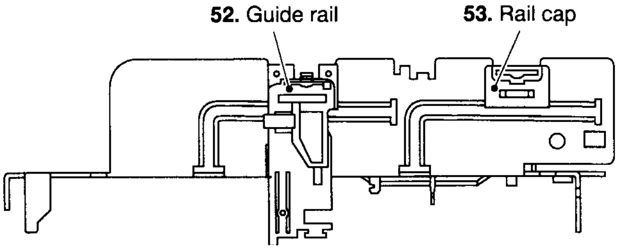

52. Guide rail
53. Rail cap

Fig. 2-1-7 Main deck left side

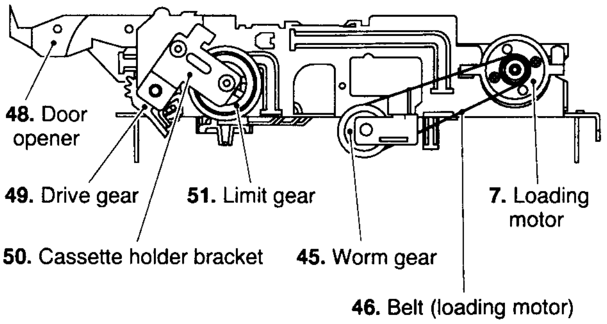

48. Door opener
49. Drive gear
51. Limit gear
7. Loading motor
50. Cassette holder bracket
45. Worm gear
46. Belt (loading motor)

Fig. 2-1-8 Main deck right side

Note: *Numerals at the start of the parts names are identical with those of the location diagrams of the major mechanical parts, 1 - 18 of which denote the order of removal. Of the alphabets T and B next to the parts names, T denotes removal from the main deck top side, B from the bottom side and T/B from both sides.*

			1,4	12	53	46	9	52	11	50	–	–	–	49	32	–	–	38	25	23	31	16	21	42	41	29	39	40	33	34	14	19	54
	Removable parts names / Replacement parts names		UV catcher	Guide arm assembly	Rail cap	Belt (loading motor)	Pinch roller arm assembly	Guide rail	Press lever assembly	Cassette Holder bracket	Opener guide	Relay gear	Cassette holder assembly	Drive gear	Loading arm gear (supply side)	Drive arm assembly	Tension spring	Take-up lever	Tension arm assembly	Tension brake assembly	Loading arm gear (take-up side)	Front bracket	Reel base (supply side)	Link lever	Rotary encoder	Belt (capstan motor)	Clutch unit	Change lever	Control plate bracket	Control plate	Sub brake	Idler lever	Pinch roller guide
17	Idler arm	T			1			2		3	4	5	6	7		8				9			10	11	12	13	14	15	16	17		18	
15	Main brake (take-up side)	T/B			1			2		3	4	5	6	7		8						9		10	11	12	13	14	15	16	17		
13	Reel disk (take-up side)	T			1			2		3	4	5	6	7		8						9		10	11	12	13	14	15	16	17		
19	Idler lever	T/B			1			2		3	4	5	6	7		8				9			10	11	12	13	14	15	16	17			
–	Rotary encoder guide	T/B			1			2		3	4	5	6	7		8						9		10	11	12	13	14	15	16	17		
14	Sub brake (take-up side)	T/B			1			2		3	4	5	6	7		8						9		10	11	12	13	14	15	16			
–	Loading arm gear shaft	B													8						9			1	2	3	4	5	6	7			
35	Tension arm bearing	T			1			2		3	4	5	6				8		9	7													
–	Control plate guide	T/B																8						1	2	3	4	5	6	7			
37	Take-up head	B																8						1	2	3	4	5	6	7			
31	Loading arm gear (take-up side)	B													8									1	2	3	4	5	6	7			
25	Tension arm assembly	T/B			1			2		3	4	5	6				8			7													
20	Main brake (supply side)	T/B			1			2		3	4	5	6	7		8																	
38	Take-up lever	T/B																						1	2	3	4	5	6	7			
32	Loading arm gear (supply side)	B																						1	2	3	4	5	6	7			
21	Reel disk (supply side)	T			1			2		3	4	5	6	7																			
–	Drive arm assembly	T			1			2		3	4	5	6	7																			
30	Capstan brake	T/B																						1	2	3	4	5	6	7			
34	Control plate	B																						1	2	3	4	5	6				
23	Tension brake assembly	T/B			1			2		3	4	5	6																				
–	Cassette holder assembly	T			1			2		3	4	5																					
–	Direct gear	B																							1	2	3	4					
10	Lid guide	T		1			2		3																								
40	Change lever	B																							1	2	3						
49	Drive gear	T								1	2	3																					
11	Press lever assembly	T		1			2																										
–	Relay gear	T								1	2																						
51	Limit gear assembly	T								1	2																						
26	Pole base assembly (supply side)	T/B	1																														
18	Pole base assembly (take-up side)	T/B	1																														
–	Tension spring (Main brake)	T																				1											
22	Rec safety lever	T/B																				1											
28	Capstan motor	T/B																								1							2
45	Worm gear	B				1																											
44	Control cam	B																						1									
43	Cassette gear	B																						1									
39	Clutch unit	B																								1							
9	Pinch roller arm assembly	T		1																													
–	Opener guide	T								1																							
8	Guide pole cap	T																															
54	Pinch roller guide	T																															
1,4	UV catcher	T																															
42	Link lever	B																															
41	Rotary encoder	B																															
12	Guide arm assembly	T																															
50	Cassette holder bracket	T																															
52	Guide rail	T																															
53	Rail cap	T																															
7	Loading motor assembly	T																															
5	A/C head assembly	T																															

2. Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.

When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth or Kimu-wipe with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.

Note: ***Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.***

(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.

(3) After cleaning, make sure that the cleaned parts are completely dry before using the video tape.

3. Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

(1) See the mechanism assembly and disassembly diagrams (M4) for the lubricating or greasing spots. See Table 2-1-2 for the types of oil or grease to be used.

Type	Name	Serial No.	Symbols on the disassembly diagrams
Grease	Maltemp SH-P	KYODO-SH-P	AA
Oil	Cosmohydro HV56	COSMO-HV56	BB

Table 2-1-2 Grease and oil used for the unit

4. Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assembly	★○	○
	A/C head	★○	★○
	Lower drum assembly	★	★○
	Pinch roller arm assembly	★	★
	Full erase head	★	★
	Tension arm assembly	★	★
	Capstan motor (Shaft)	★	★
	Guide arm assembly	★	★
Drive	Capstan motor		○
	Capstan brake		○
	Main brake		○
	Belt (Capstan)	○	○
	Belt (Loading motor)		○
	Loading motor		○
	Clutch unit		○
	Worm gear assembly		○
	Control plate		○
Other	Brush assembly	★○	★○
	Tension brake	○	○
	Rotary encoder		○

★: Cleaning

○: Inspection or Replacement if necessary

Table 2-1-3

2.2 REPLACEMENT OF MAJOR PARTS

2.2.1 Before Starting Disassembling

This unit is provided with a mechanism assembly mode. It is therefore necessary to enter this mode for assembling and disassembling procedures.
This mode is usually not in use, manually set it when it is required.

2.2.2 How to Set the Mechanism Assembling Mode

Remove the main deck assembly and place it bottom side up. (See SECTION 1 DISASSEMBLY). Turn the worm gear toward the front so that the register hole of the control cam is brought into alignment with the hole at the main deck assembly chassis. This position renders the mechanism assembling mode operational. Make sure that the control plate is located in alignment with the mark E. (See Fig.2-2-1)

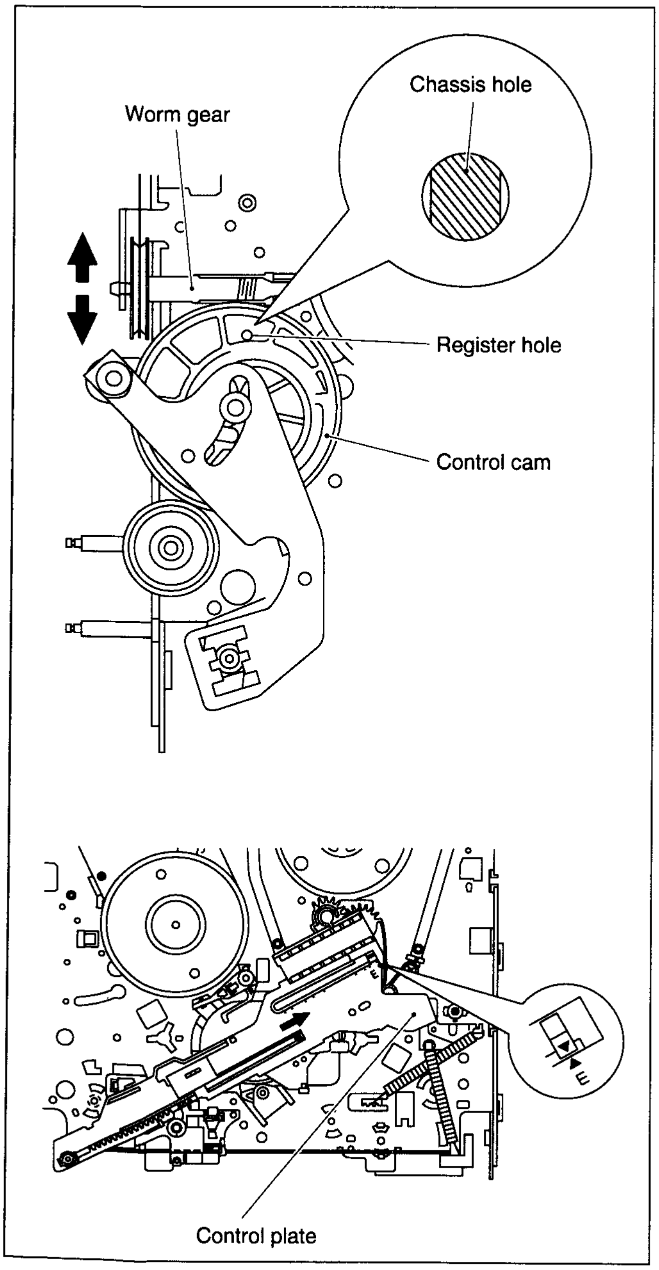

Chassis hole
Worm gear
Register hole
Control cam
E
Control plate

Fig. 2-2-1

2.2.3 Cassette Holder Assembly

1. How to remove

(1) Remove the guide rail and rail cap. (See Fig.2-2-2).
(2 lugs on the guide rail and one lug on the rail cap)

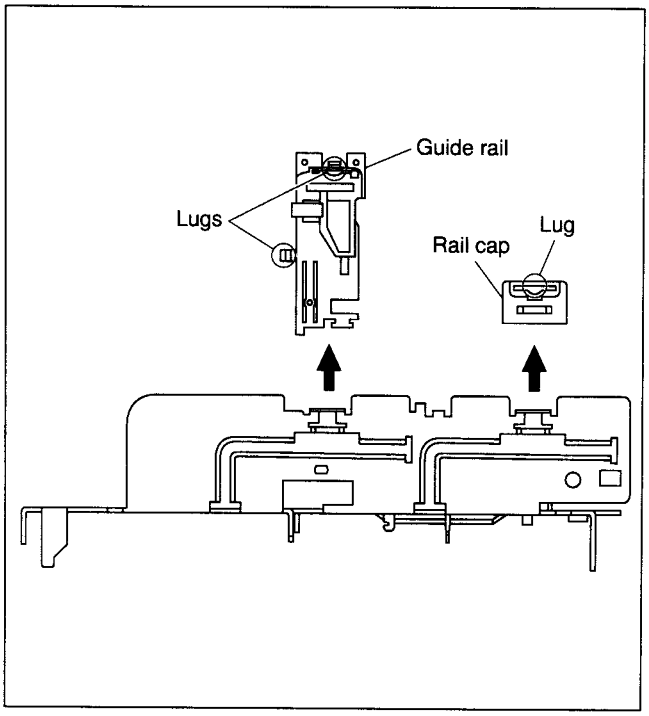

Guide rail
Lugs
Lug
Rail cap

Fig. 2-2-2

(2) Remove the two slit washers and remove the cassette holder bracket. (See Fig.2-2-3)

(3) Remove the opener guide, relay gear and limit gear. (See Fig.2-2-3)

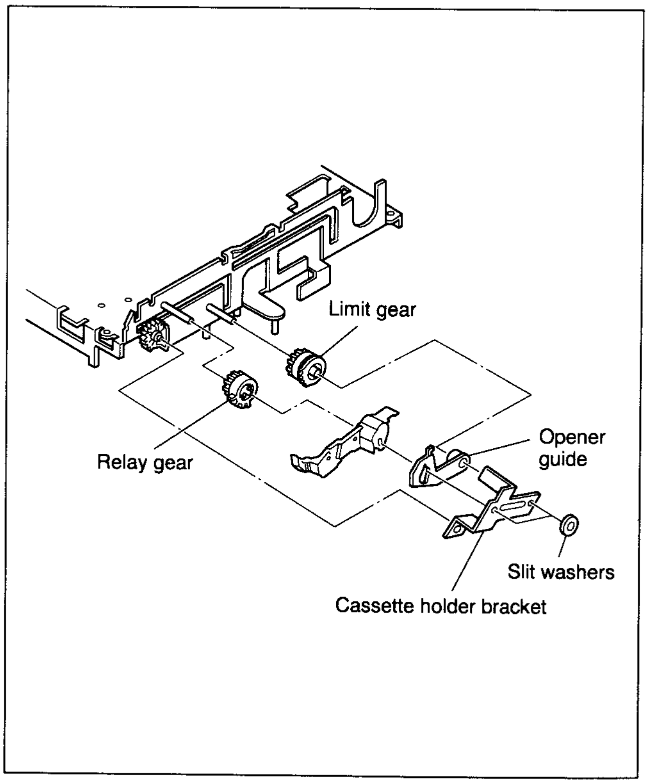

Limit gear
Relay gear
Opener guide
Slit washers
Cassette holder bracket

Fig. 2-2-3

(4) While swinging the lock levers (R) and (L) of the cassette holder assembly toward the front, slide the cassette holder assembly until its legs come to where the guide rail and the rail cap have been removed (so that the drive arm is upright). (See Fig.2-2-4)

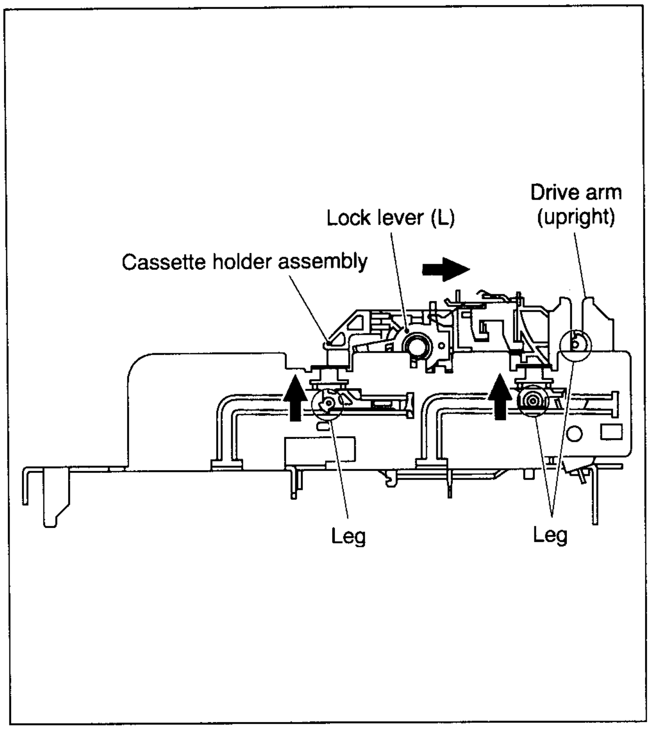

Drive arm (upright)
Lock lever (L)
Cassette holder assembly
Leg
Leg

Fig. 2-2-4

(5) While holding the left side of the cassette holder, lift the cassette holder assembly so that the three legs on the left side are all released. Then pull the legs Ⓐ and Ⓑ on the right side out of the rail and also pull up the leg Ⓒ. (See Fig.2-2-5, Fig.2-2-6)

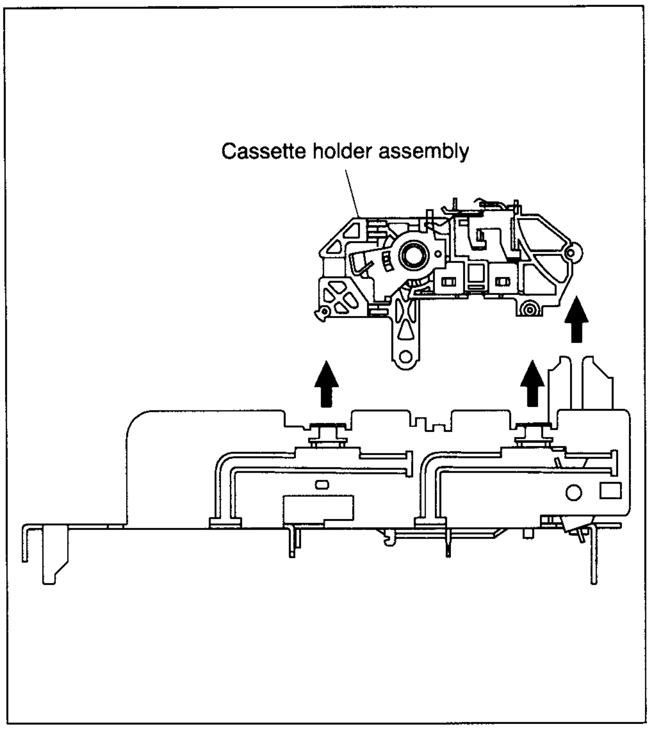

Cassette holder assembly

Fig. 2-2-5

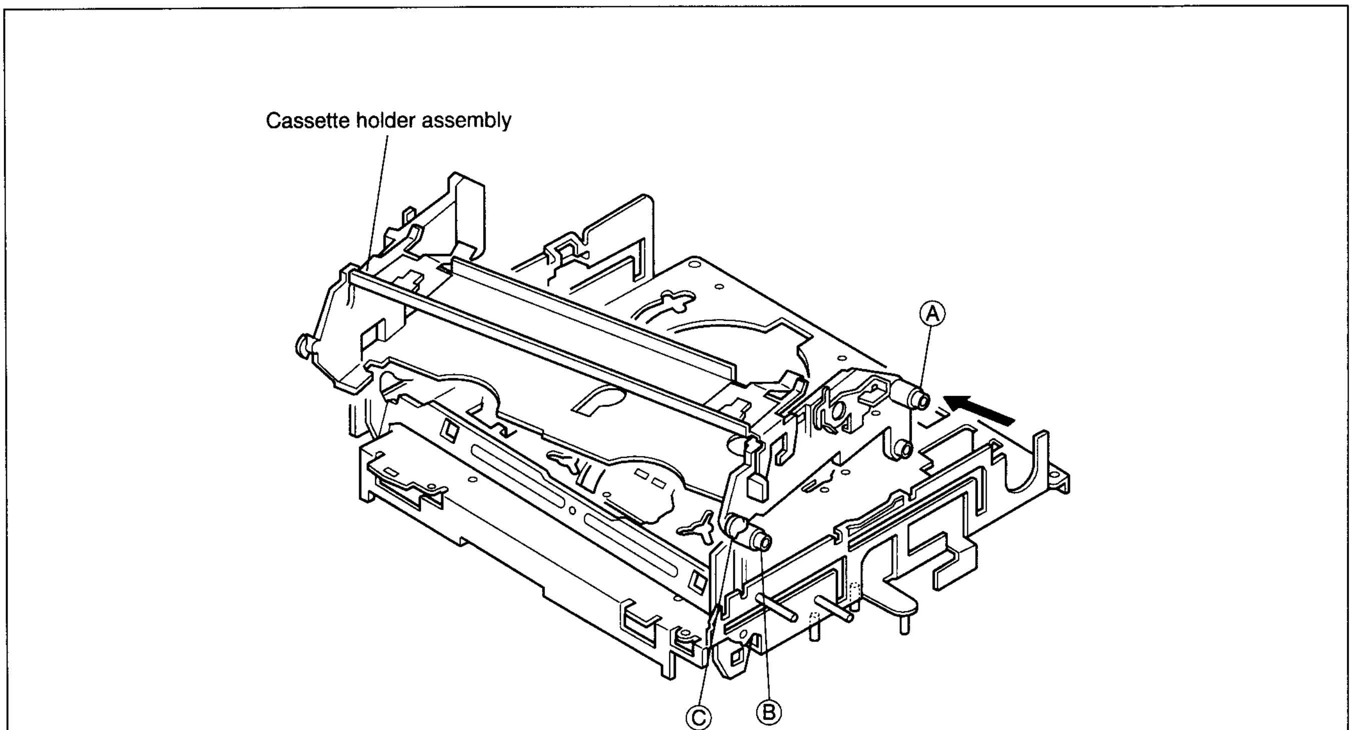

Cassette holder assembly
Ⓐ
Ⓒ
Ⓑ

Fig. 2-2-6

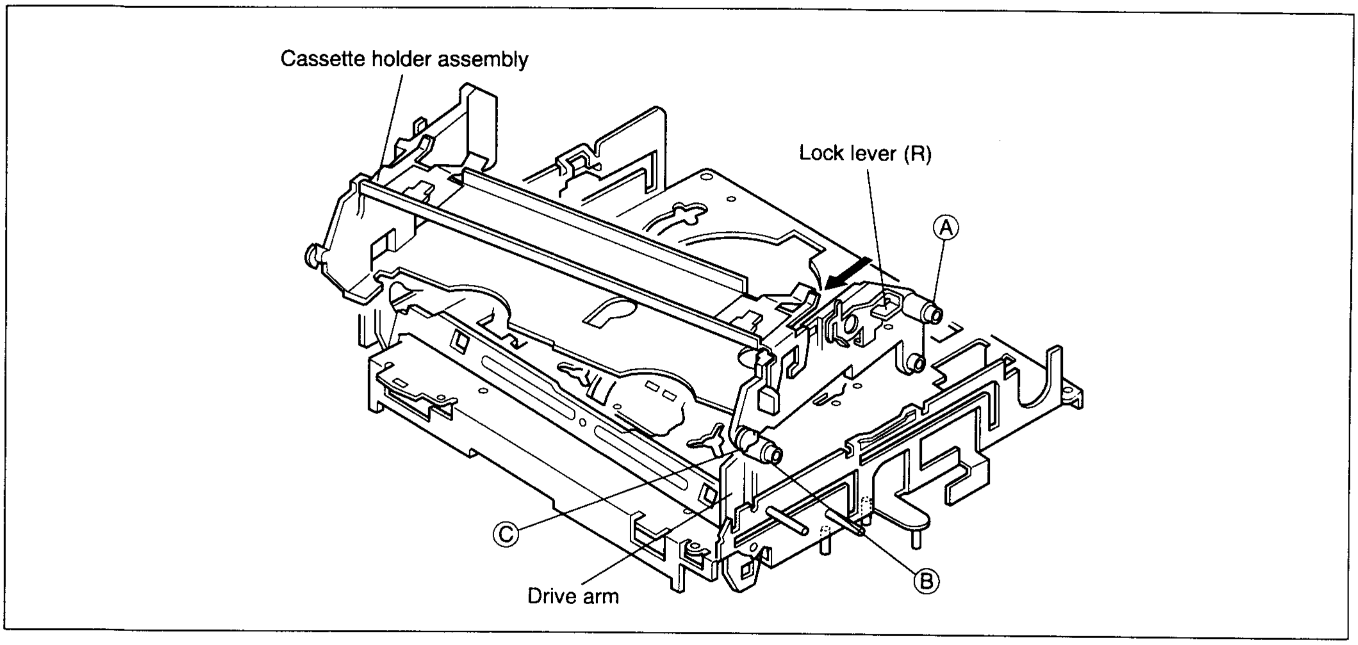

Cassette holder assembly
Lock lever (R)
Ⓐ
Ⓒ
Drive arm
Ⓑ

Fig. 2-2-7

2. How to install

(1) Hold the drive arm upright and fit the leg Ⓒ on the right side of the cassette holder assembly into the groove. (See Fig.2-2-7)
(2) While swinging the lock lever (R) of the cassette holder assembly toward front, put the legs Ⓐ and Ⓑ into the rail. (See Fig.2-2-7)
(3) Drop the three legs on the left side of the cassette holder into the groove at one time. (See Fig.2-2-8)
(4) Slide the whole cassette holder toward the front to bring it to the eject end position.
(5) Install the limit gear so that the notch on the outer circumference of the limit gear is brought into alignment with the register hole on the main deck. (See Fig.2-2-9)
(6) Install the relay gear so that the notch on the outer circumference of the relay gear is brought into alignment with the notch on the main deck. It is important at this stage that the register hole at the limit gear, the register hole at the relay gear and the register hole at the drive gear are all in alignment. (See Fig.2-2-9).
(7) Install the door stopper, opener guide and cassette holder bracket and fasten the two slit washers.

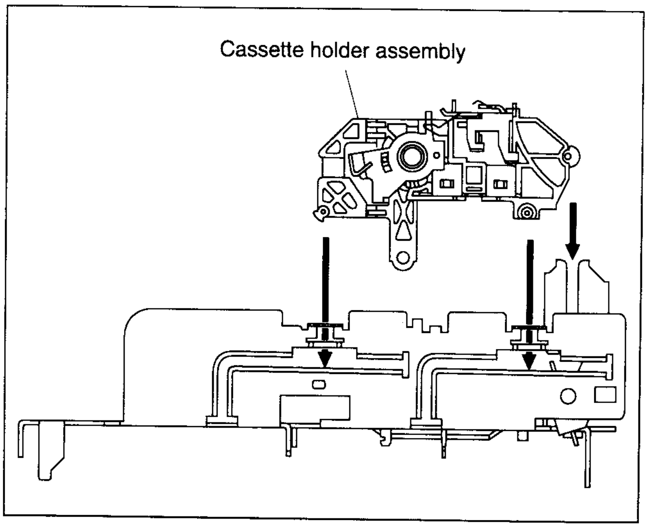

Cassette holder assembly

Fig. 2-2-8

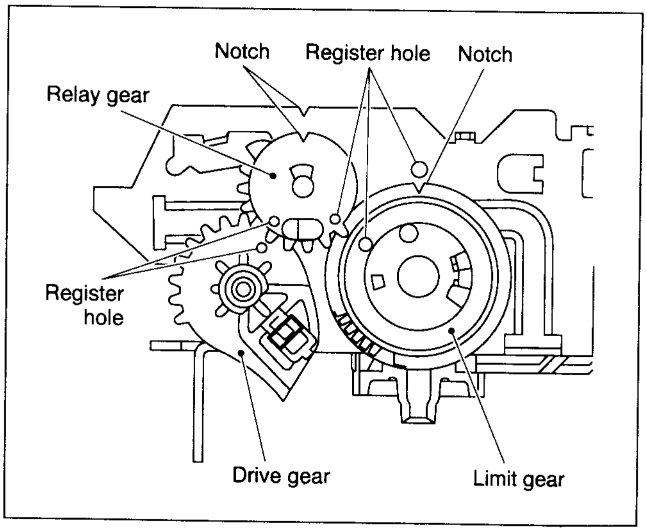

Notch
Register hole
Notch
Relay gear
Register hole
Drive gear
Limit gear

Fig. 2-2-9

2.2.4 Pinch Roller Arm Assembly

1. How to remove

(1) Remove the spring from the hook of the press lever.

(2) Remove the slit washer and remove the pinch roller seat. (See Fig.2-2-10)

(3) Remove the pinch roller arm assembly by pulling it up.

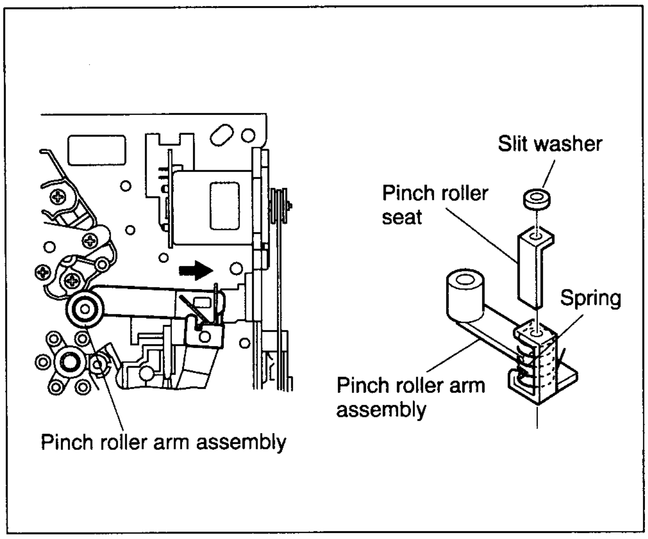

Slit washer
Pinch roller seat
Spring
Pinch roller arm assembly
Pinch roller arm assembly

Fig. 2-2-10

2.2.5 Guide Arm and Press Lever

1. How to remove

(1) Remove the spring and expand the lug of the lid guide in the arrow-indicated direction. Then remove the guide arm by pulling it up.

(2) Remove the press lever by pulling it up. (See Fig.2-2-11)

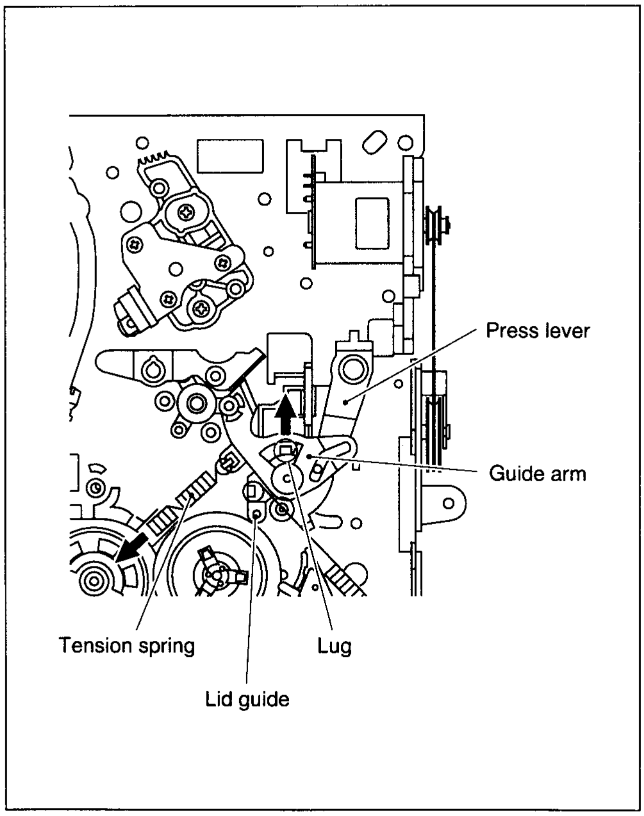

Press lever
Guide arm
Tension spring
Lug
Lid guide

Fig. 2-2-11

2.2.6 Audio Control Head

1. How to remove

(1) Remove two screws (A) and remove the audio control head together with the head base.

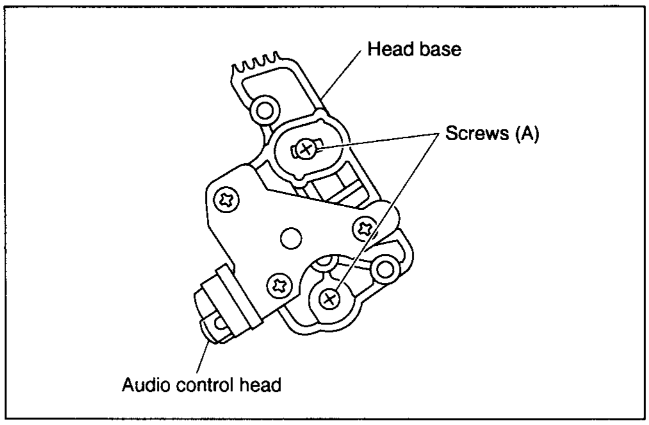

Head base
Screws (A)
Audio control head

Fig. 2-2-12

(2) When replacing only the audio control head, remove the three screws (B) while controlling the compression spring.

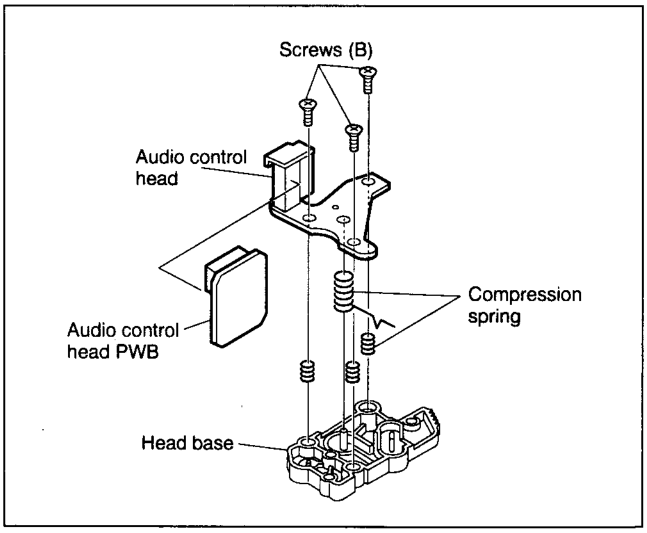

Screws (B)
Audio control head
Compression spring
Audio control head PWB
Head base

Fig. 2-2-13

2. How to install

(1) To make the post-installation adjustment easier, set the temporary level as indicated in Fig.2-2-14. Also make sure that the screw center is brought into alignment with the center position of the slot.

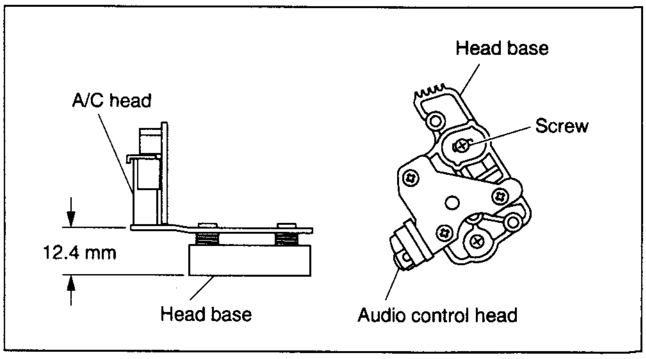

A/C head
12.4 mm
Head base
Head base
Screw
Audio control head

Fig. 2-2-14

2.2.7 Loading Motor

1. How to remove

(1) Remove the belt wound around the worm gear.

(2) Open the two lugs of the motor guide and remove the loading motor, loading motor PWB and motor guide altogether by pulling them up.

(3) When replacing the motor base, take care with the orientation of the motor (so that the label faces upward).

(4) When the motor pulley has been replaced, choose the fitting dimension as indicated in Fig.2-2-15.

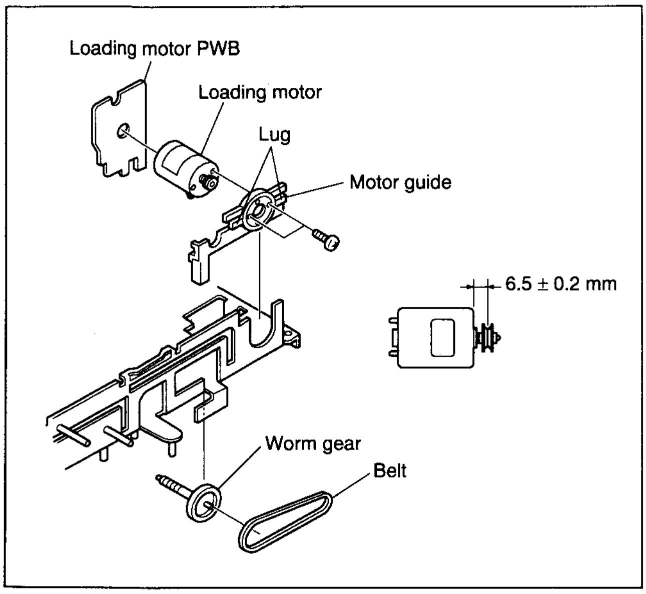

Loading motor PWB
Loading motor
Lug
Motor guide
6.5 ± 0.2 mm
Worm gear
Belt

Fig. 2-2-15

2.2.8 Capstan Motor

1. How to remove

(1) Remove the belt (capstan) on the main deck back side.

(2) Remove one screw (A) and remove the pinch roller guide.

(3) Remove two screws (B) and remove the capstan motor.

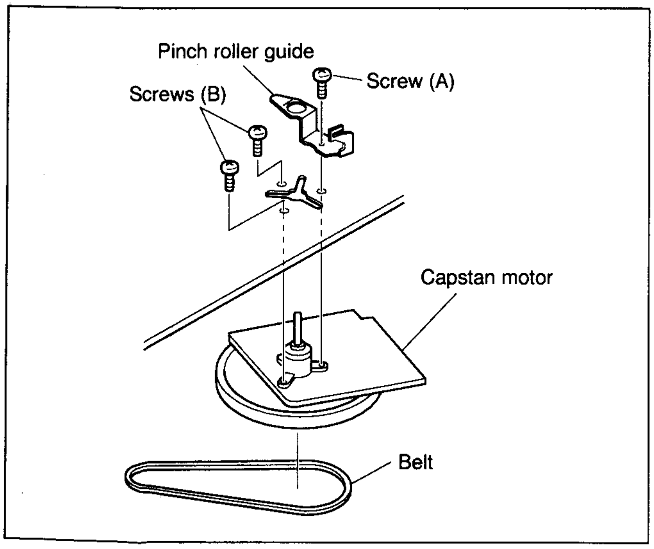

Pinch roller guide
Screw (A)
Screws (B)
Capstan motor
Belt

Fig. 2-2-16

2. How to install

Please refer to page 2-25.

2.2.9 Pole Base (on the supply or take-up side)

1. How to remove

(1) Remove the UV catcher on the removal side by loosening one screw (A).

(2) Remove the pole base on the supply side from the main deck by loosening one screw (B) on the main deck back side and sliding the pole base toward the UV catcher.

(3) As for the pole base on the take-up side, turn the pulley of the loading motor to lower the cassette holder because the screw (B) is hidden under the control plate (See the "Procedures for Lowering the Cassette holder assembly" on page 1-3 of 1.3 DISASSEMBLY/ASSEMBLY METHOD). Further turn the motor pulley to move the cassette holder until the screw (B) is no longer under the control plate (in the half-loading position). Then remove it as done for the supply side by removing one screw (B).

NOTE: *After reinstalling the Pole base and the UV catcher, be sure to perform compatibility adjustment.*

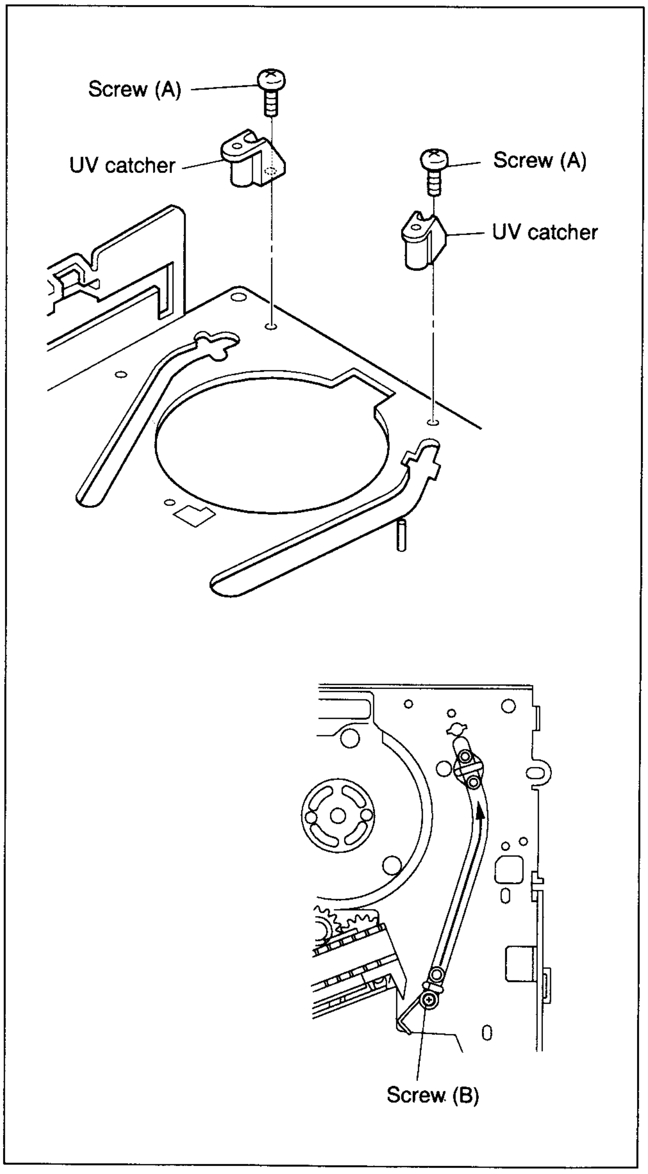

Screw (A)
UV catcher
Screw (A)
UV catcher
Screw (B)

Fig. 2-2-17

2.2.10 Rotary Encoder

(1) Remove one screw (A) and remove the rotary encoder by pulling it up.
(2) When installing the rotary encoder, bring the register marks into alignment as indicated in Fig.2-2-18.

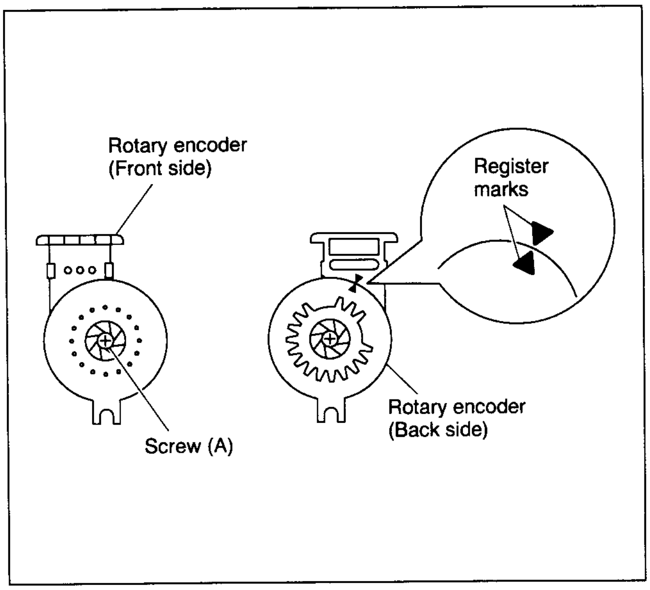

Rotary encoder
(Front side)
Register marks
Screw (A)
Rotary encoder
(Back side)

Fig. 2-2-18

2.2.11 Clutch Unit

(1) Remove the belt wound around the capstan motor and the clutch unit.
(2) Remove the slit washer and remove the clutch unit.

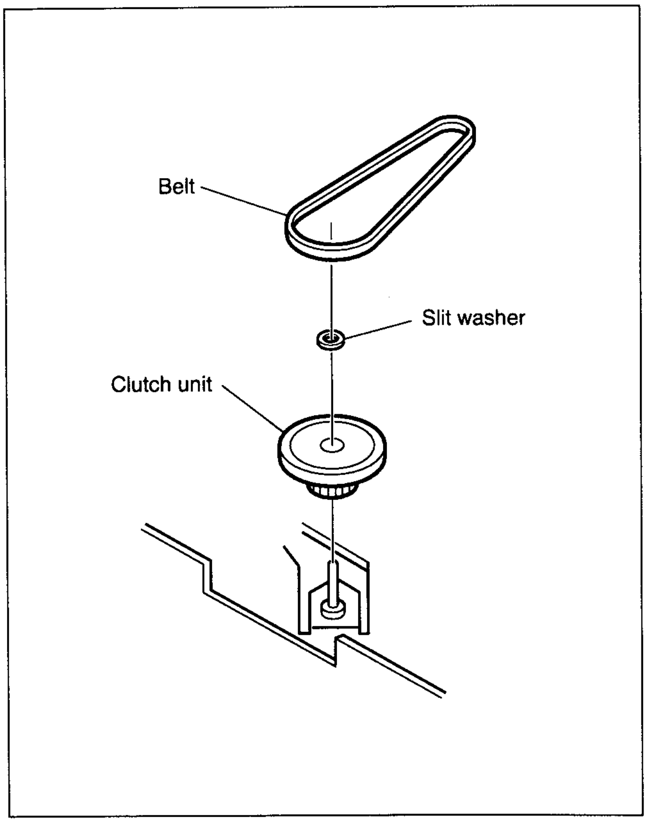

Belt
Slit washer
Clutch unit

Fig. 2-2-19

2.2.12 Change Lever and Direct Gear

(1) Release two lugs of the rotary encoder guide in the arrow-indicated direction and remove the change lever.
(2) Remove the slit washer retaining the direct gear and remove the latter.
Take care of the two washers and one spring on and under the direct gear. (See Fig.2-2-20)

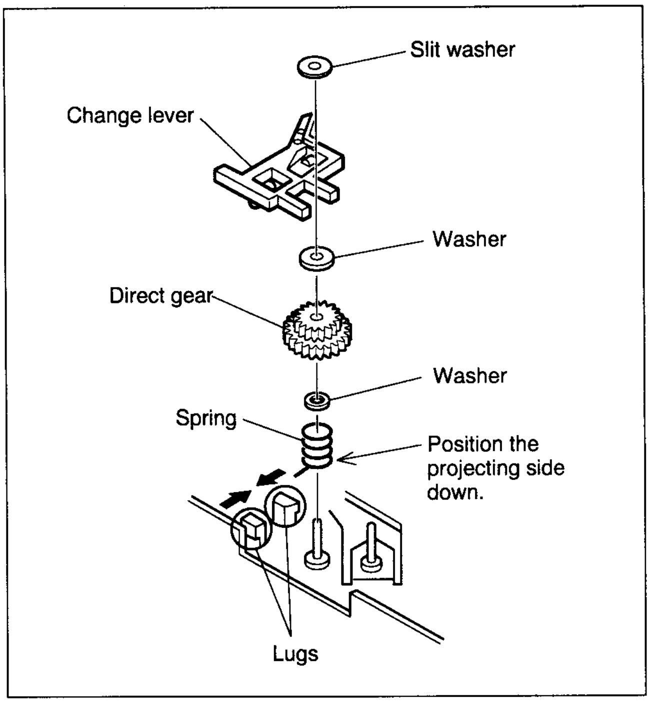

Slit washer
Change lever
Washer
Direct gear
Washer
Spring
Position the projecting side down.
Lugs

Fig. 2-2-20

2.2.13 Link Lever

(1) Remove the two slit washers.
(2) Remove the link lever by lifting it from the shaft retained by the slit washers. Then swing the link lever counterclockwise and remove it from the lock member of the control plate.

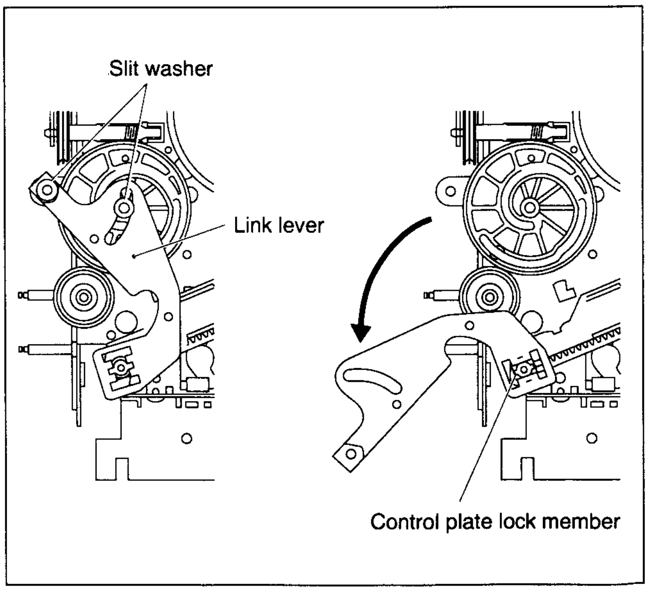

Slit washer
Link lever
Control plate lock member

Fig. 2-2-21

2.2.14 Cassette Gear, Control Cam and Worm Gear

(1) Remove the control cam by lifting it.

(2) Open the two lugs of the cassette gear outward and pull the latter off.

(3) Remove the belt wound around the worm gear and the loading motor.

(4) Open the lug of the lid guide outward and remove the worm gear.

(5) When installing the control cam, make sure that the register hole at the control cam is in alignment with the register hole of the main deck. (See Fig.2-2-22)

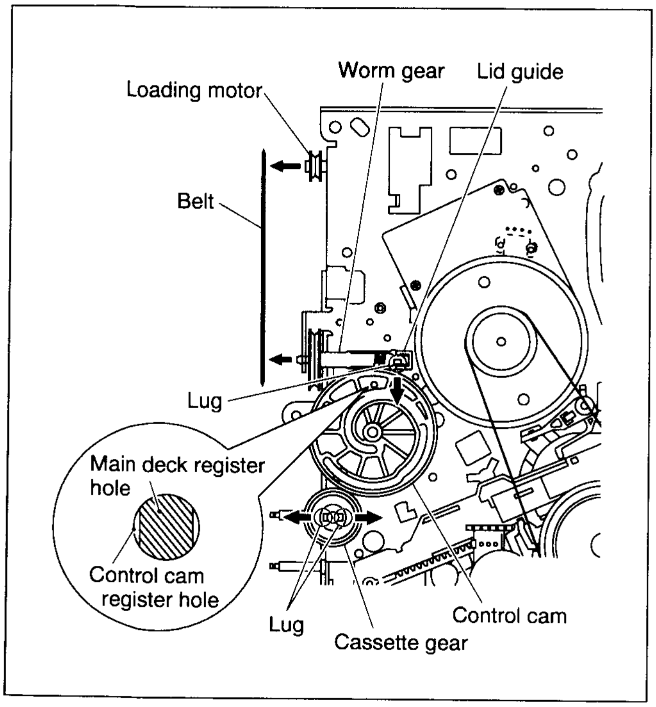

Worm gear
Lid guide
Loading motor
Belt
Lug
Main deck register hole
Control cam register hole
Lug
Cassette gear
Control cam

Fig. 2-2-22

2.2.15 Control Plate

1. How to remove

(1) Remove one screw (A) retaining the control plate bracket and remove the latter.

(2) Slide the control plate as indicated by the arrow and remove the control plate. (See Fig.2-2-23)

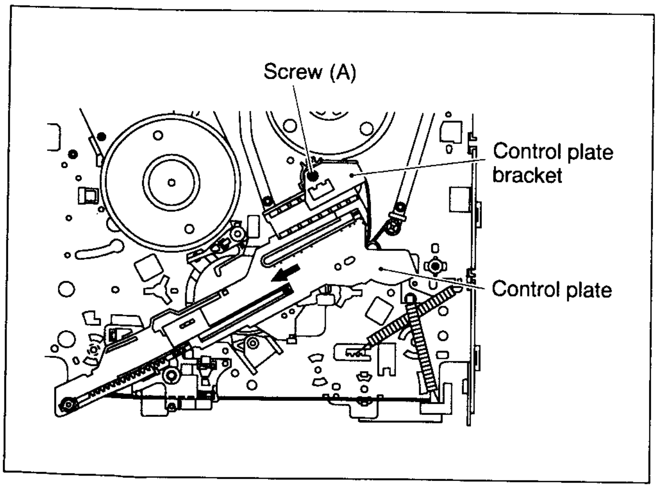

Screw (A)
Control plate bracket
Control plate

Fig. 2-2-23

2. How to install

(1) Adjust the position of the idler arm pin as indicated in Fig.2-2-24. (to the left of center of the R section)

(2) Bring the positioning hole of the take-up lever into alignment with the hole at the control plate guide and fix the position by inserting a 1.5 mm hexagonal wrench.

(3) Press-fit the pole base (on the supply side) as indicated by the arrow and install the control plate so that section A of the loading arm gear shaft fits into hole (A) of the control plate, section B of the control plate guide into hole (B), and the control plate comes under section C of the rotary encoder guide and section D of the loading arm (on the take-up side). Then slide the whole control plate in the arrow-indicated direction. (See Fig.2-2-25).

(4) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft. (See Fig.2-2-25)

(5) Pull off the hexagonal wrench for positioning.

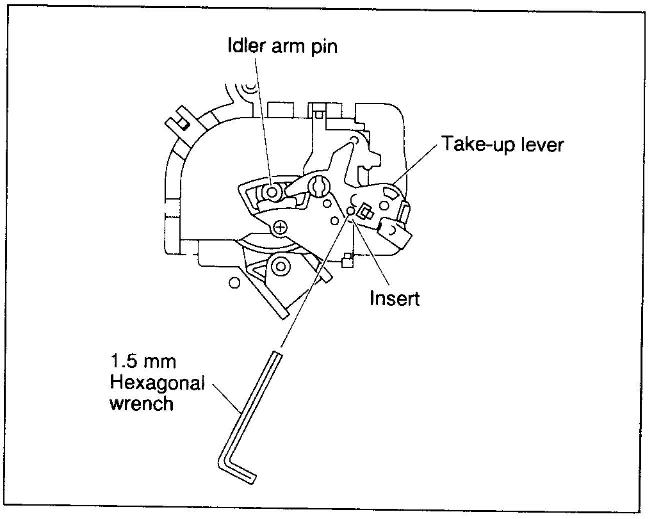

Idler arm pin
Take-up lever
Insert
1.5 mm Hexagonal wrench

Fig. 2-2-24

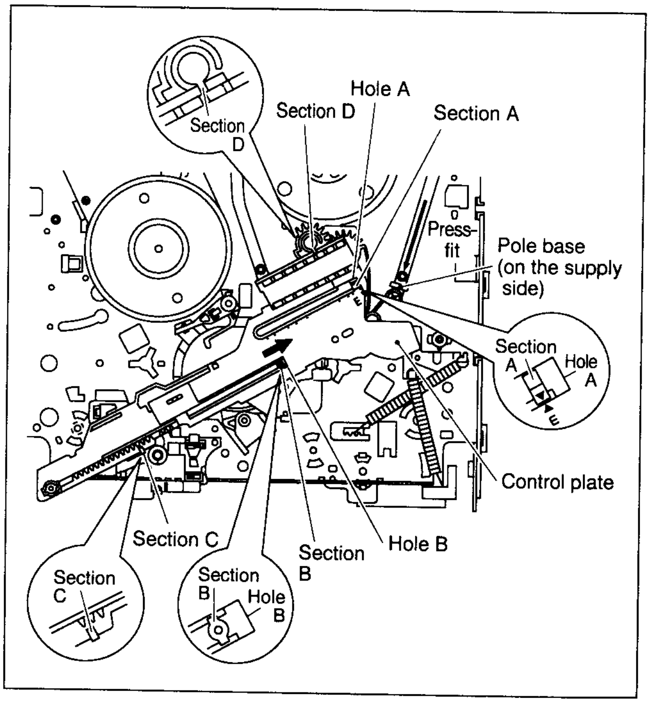

Section D
Hole A
Section D
Section A
Press-fit
Pole base (on the supply side)
Section A
Hole A
E
Control plate
Section C
Section B
Hole B
Section C
Section B
Hole B

Fig. 2-2-25

2.2.16 Loading Arm (on the supply or take-up side) and Loading Arm Gear Shaft

1. How to remove

(1) Remove the loading arm (on the supply side) by loosening screw (A) in Fig.2-2-26.

(2) Remove screw (B) in Fig.2-2-26 and slide the pole base in the loading direction with the spring held on the pole base (on the take-up side). (See Fig.2-2-26)

(3) Pull the spring out of the pole base. Turn the loading arm clockwise through about 45 degrees so that the notch of the loading arm is in alignment with the projection of the loading arm gear shaft and lift it.
Likewise, turn the loading arm counterclockwise through 180 degrees so that the notch is in alignment with the projection and remove the loading arm (on the take-up side). (See Fig.2-2-27)

(4) When removing the loading arm gear shaft, be sure of first removing the screw retaining the drum assembly (on the back side of the loading arm gear shaft). Then remove one screw (C) and remove the loading arm gear shaft by sliding it in the arrow-indicated direction.

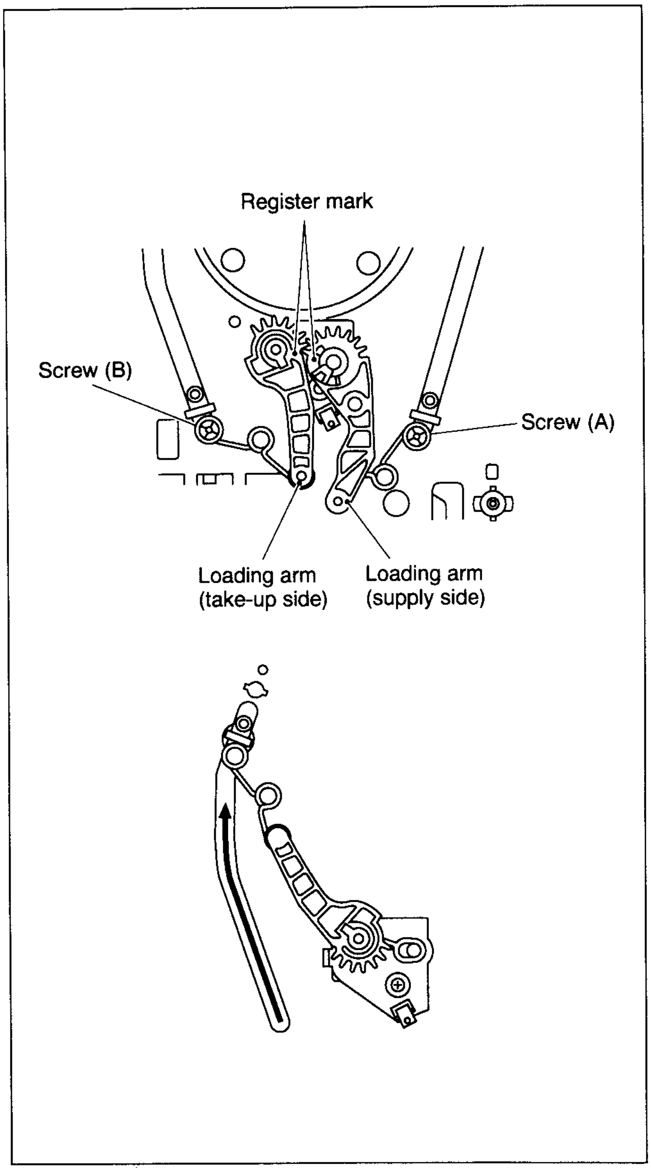


Fig. 2-2-26

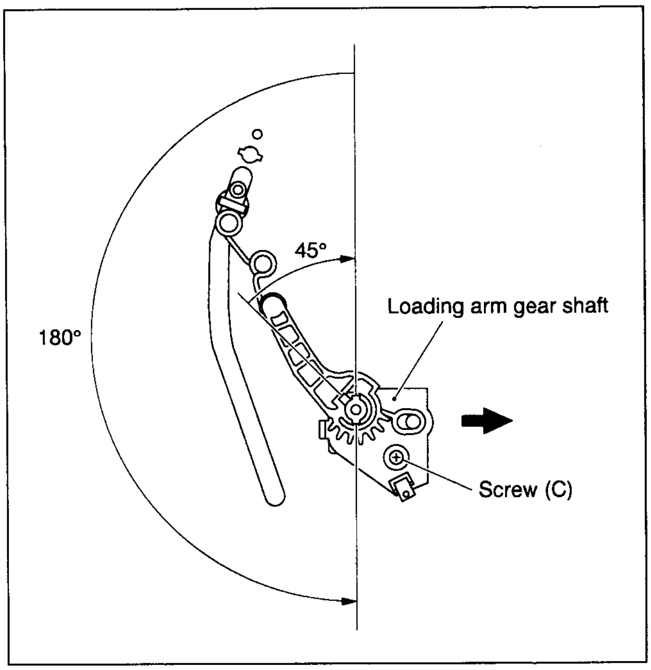


Fig. 2-2-27

2. How to install

(1) Install the loading arm (on the take-up side) as indicated in Fig.2-2-28 and turn it clockwise through 180 degrees so that the loading arm reaches the bottom of the loading arm gear shaft.

(2) Then turn the loading arm (on the take-up side) counterclockwise through 180 degrees. Hang the spring on the pole base and tighten the screw.

(3) Install the loading arm (on the supply side) so that the register mark of the loading arm (on the take-up side) is in alignment with the register mark of the loading arm (on the supply side). Then hang the spring on the pole base and tighten the screw. (See Fig.2-2-26).

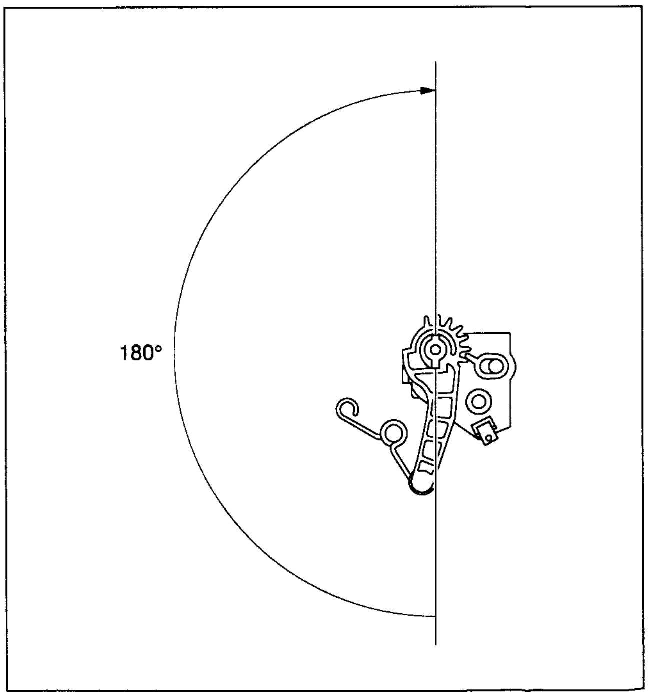


Fig. 2-2-28

2.2.17 Take-up Lever, Take-up Head and Control Plate Guide

(1) Remove the spring of the take-up lever from the main deck.

(2) Remove one lug of the take-up lever from the main deck and pull out the take-up lever and the take-up head together.

(3) Remove one screw (A).

(4) Remove two lugs of the control plate guide from the main deck. Locate the idler arm pin in the center of the R section of the control plate and remove the latter.

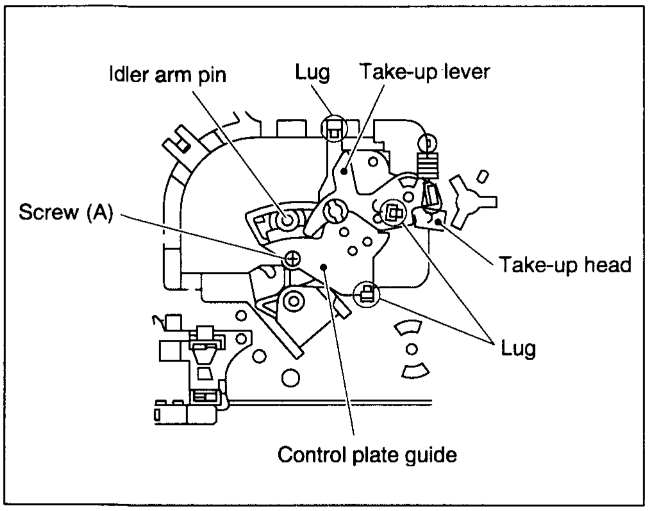


Fig. 2-2-29

2.2.18 Capstan Brake

(1) Move lug A of the capstan brake in the arrow-indicated direction so that it comes into alignment with the notch of the main deck. (See Fig. 2-2-30)

(2) Remove lug B of the capstan brake from the main deck and remove the capstan brake.

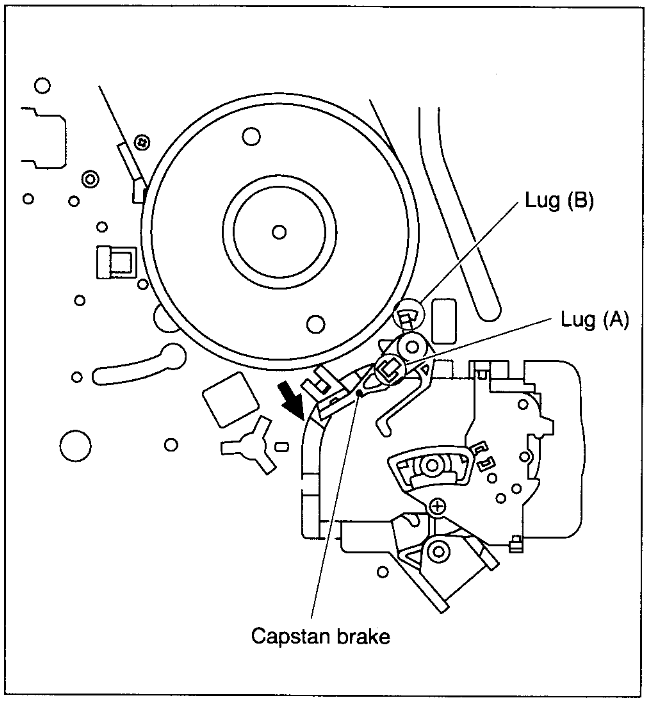


Fig. 2-2-30

2.2.19 Drive Gear and Drive Arm

1. How to remove

(1) Remove the cassette holder assembly. (See 2.2.3 How to remove the cassette holder assembly)

(2) Pull out the drive gear and remove the drive arm.

2. How to install

(1) Insert section A of the drive arm into section B of the main deck.

(2) Insert section ① of drive gear into hole ○ of the drive arm and section ② into hole □. (See Fig. 2-2-31)

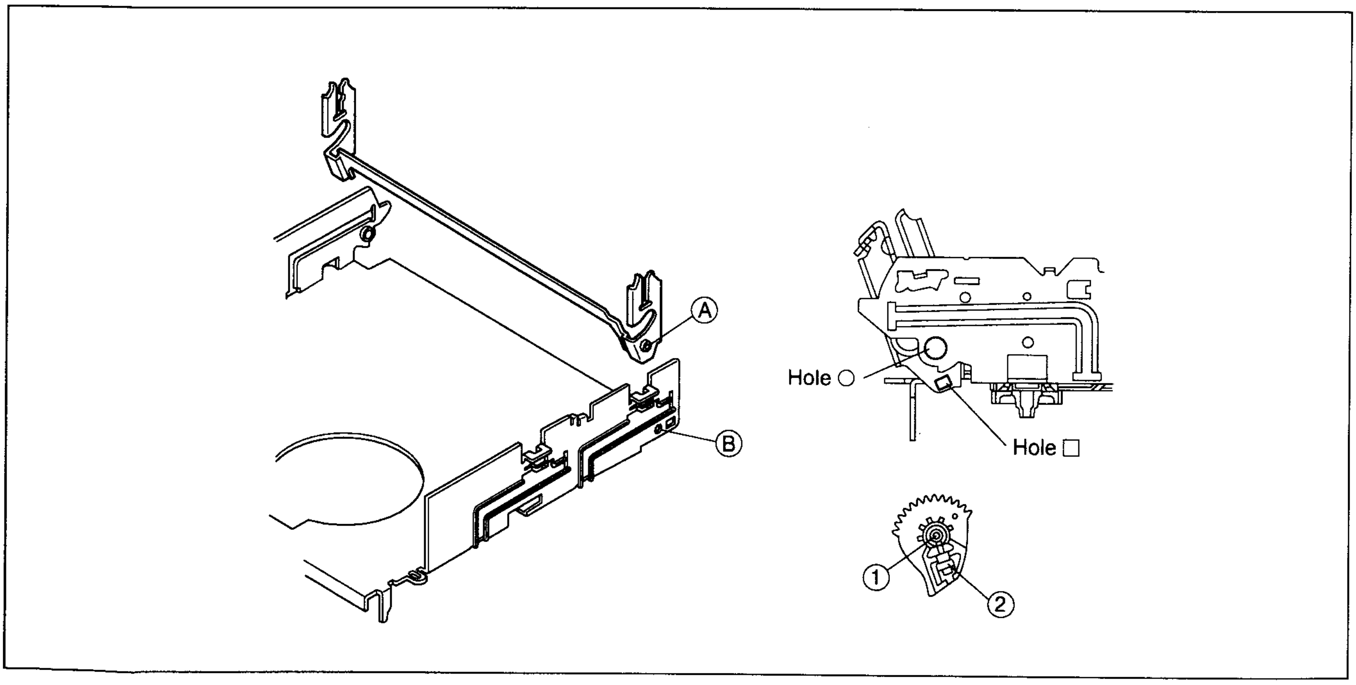


Fig. 2-2-31

2.2.20 Sub Brake (on the take-up side)

(1) Remove the spring attached to the lid guide and sub brake.
(2) Bring lug Ⓐ of the sub brake into alignment with the notch of the main deck.
(3) Remove lugs Ⓑ and Ⓒ of the sub brake from the main deck and remove the sub brake.

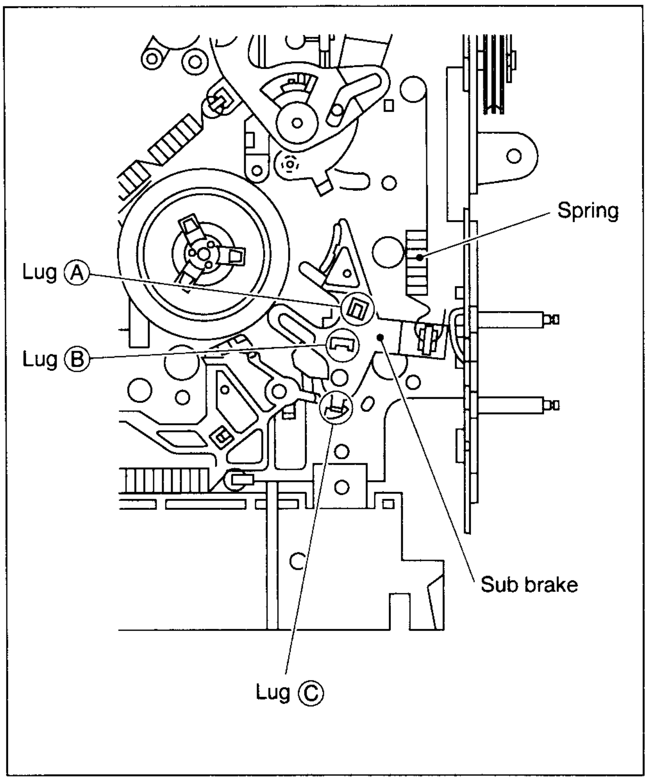

Spring
Lug Ⓐ
Lug Ⓑ
Sub brake
Lug Ⓒ

Fig. 2-2-32

2.2.21 Main Brake (on the take-up side), Reel Disk (on the take-up side) and Main Brake (on the supply side)

(1) Move the main brake (on the take-up side) in the arrow-indicated direction and remove the reel disk (on the take-up side).
(2) Remove the spring attached to the main brake.
(3) Remove lug Ⓐ of the main brake (on the take-up side) and pull out lug Ⓑ after bringing it into alignment with the main deck notch.
(4) Remove lugs Ⓒ and Ⓓ of the main brake (on the supply side) from the main deck and pull them off. (See Fig.2-2-33)

Note: *If the main brake is difficult to remove, press it and hold the adjustment pin from the back side of the main deck when attempting to remove it.*
After the adjustment pin has been removed or the main brake or the reel disk on the supply or take-up side have been replaced, it is required to adjust the main brake torque. See page 2-24 for the detailed adjustment procedures.

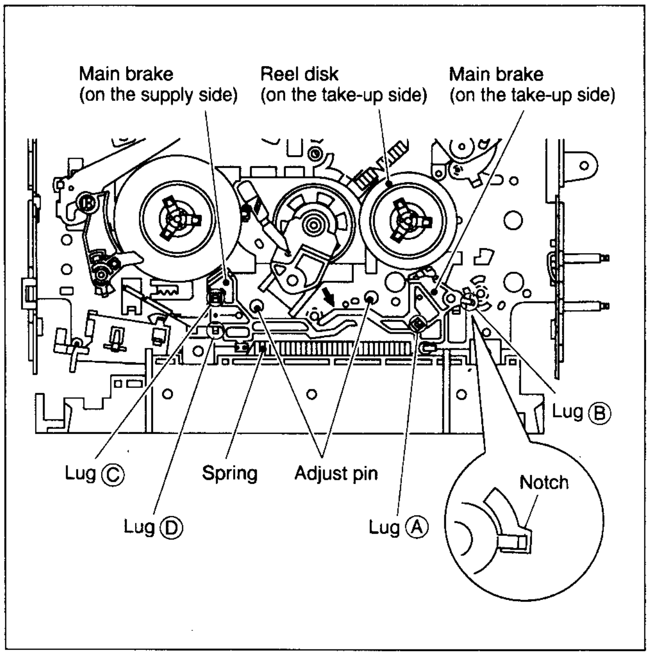

Main brake (on the supply side)
Reel disk (on the take-up side)
Main brake (on the take-up side)
Lug Ⓑ
Lug Ⓒ
Spring
Adjust pin
Notch
Lug Ⓓ
Lug Ⓐ

Fig. 2-2-33

2.2.22 Tension Brake, Reel Disk (on the supply side) and Tension Arm

(1) Remove the three lugs of the tension brake from the main deck and pull them off.
(2) Remove the reel disk (on the supply side) by loosening in the arrow-indicated direction the main brake (on the supply side).
(3) Remove the tension spring on the main deck back side and remove the lugs of the tension arm bearing to pull up and remove the tension arm. (See Fig.2-2-34)

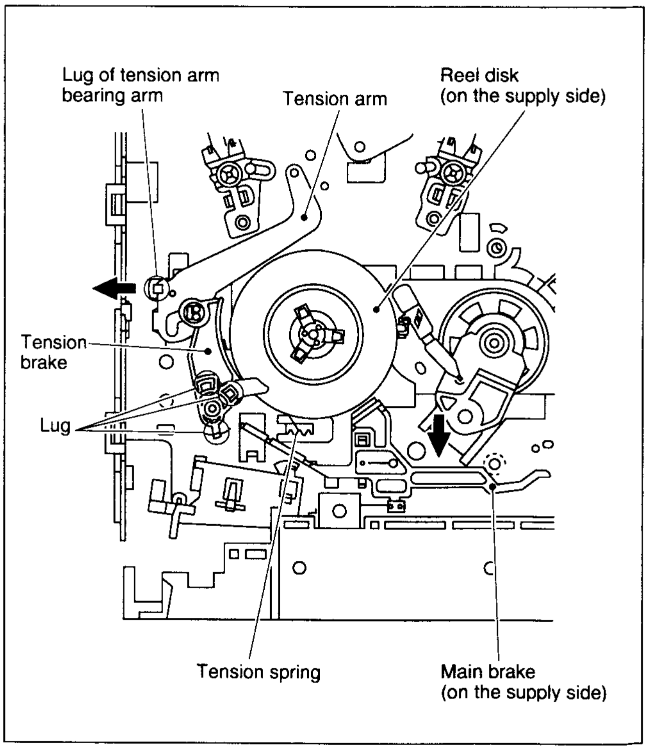

Lug of tension arm bearing arm
Tension arm
Reel disk (on the supply side)
Tension brake
Lug
Tension spring
Main brake (on the supply side)

Fig. 2-2-34

2.2.23 Idler Lever, Idler Arm and Reel Shaft

(1) Remove one lug of the idler lever from the main deck and remove the hook fitted in the idler arm hole by lifting it.
(2) Remove the slit washer and pull out the idler arm.
(3) Turn the reel shaft counterclockwise through 60 degrees and remove it. (See Fig.2-2-35)

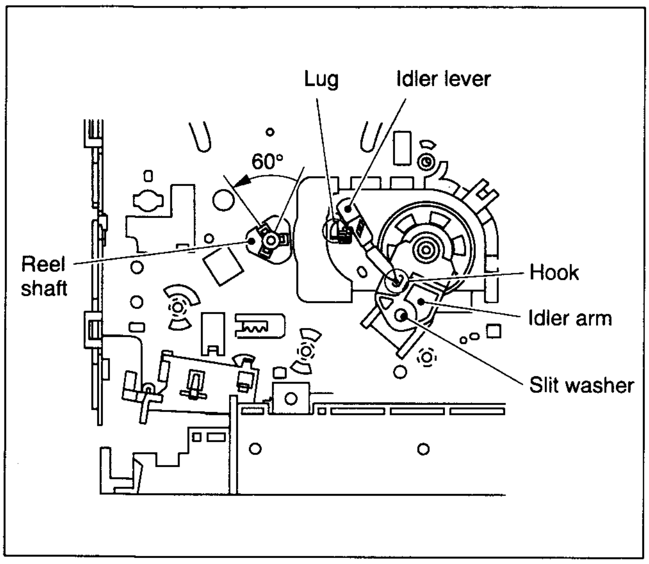

Lug
Idler lever
60°
Reel shaft
Hook
Idler arm
Slit washer

Fig. 2-2-35

2.2.24 Stator Assembly

(1) Remove two screws (A).
(2) Remove the stator assembly by lifting in the arrow-indicated direction (Take care that the brush spring does not jump out).
(3) Remove the flat cable.
(4) After installation, be sure to perform the 3.2.1 PB switching point adjustment according to the electrical adjustment procedure.

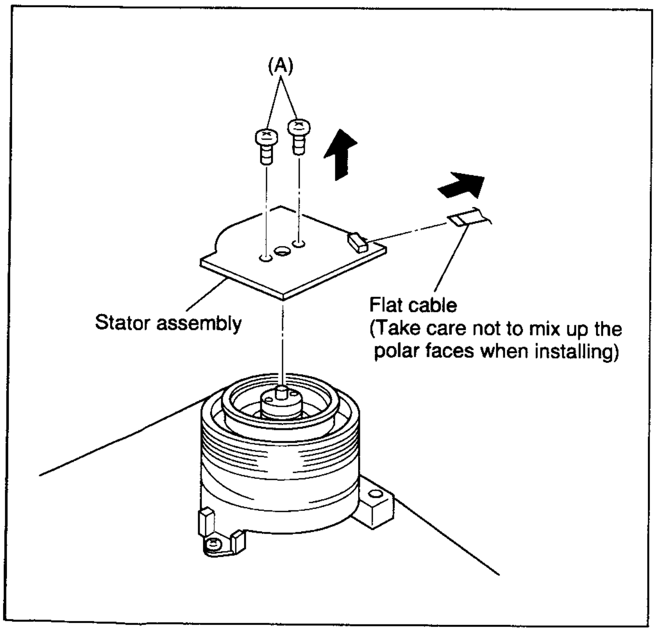

(A)
Stator assembly
Flat cable
(Take care not to mix up the polar faces when installing)

Fig. 2-2-36

2.2.25 Rotor Assembly

(1) Remove the stator assembly.
(2) Remove the two screws (B) and remove the rotor assembly.

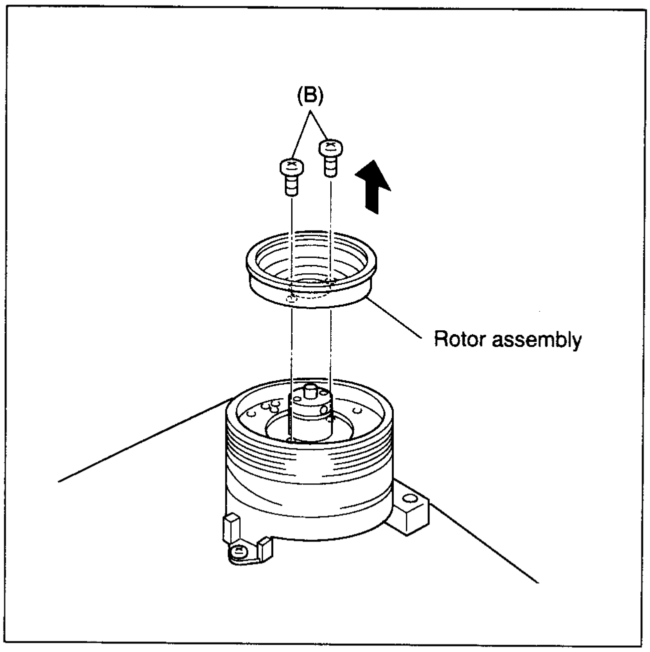

(B)
Rotor assembly

Fig. 2-2-37

Note: *When installing the rotor assembly, note that a normal picture cannot be obtained without ensuring the phase matching as mentioned below.*

(3) Match the phases of the upper drum and the rotor assembly as indicated in Fig.2-2-38.
(4) Place the upper drum hole (a) over the rotor assembly holes (b) (with three holes to be aligned) and tighten the two screws (B). (See Fig.2-2-38)

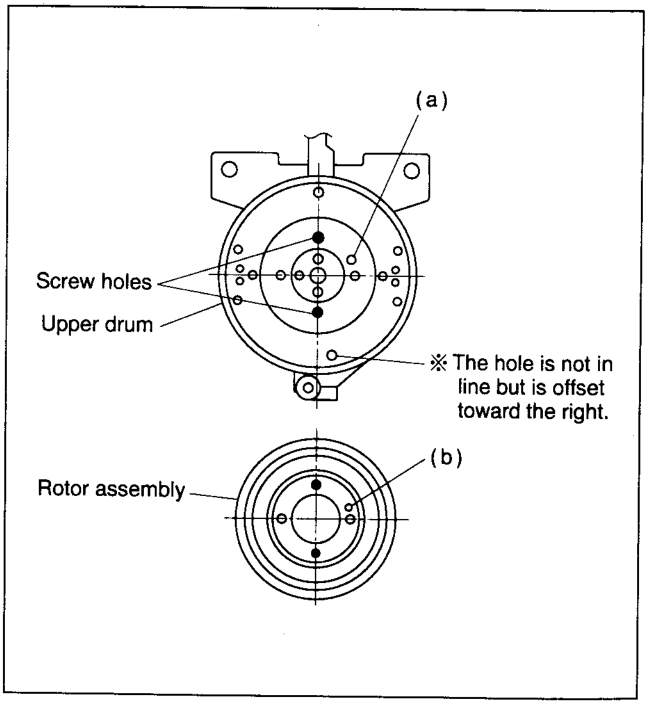

(a)
Screw holes
Upper drum
※ The hole is not in line but is offset toward the right.
(b)
Rotor assembly

Fig. 2-2-38

2.2.26 Upper Drum Assembly

1. How to remove

(1) Remove the stator assembly and rotor assembly. (See Fig. 2-2-36 and 2-2-37)
(2) Loosen the screw of the collar assembly using a 1.5 mm hexagonal wrench and remove the collar assembly. Also remove the brush, spring and cap at one time.
(3) Remove the upper drum assembly and remove the washer using tweezers.

Note: *When replacement is required, control the up-down movement of the brush. Never apply grease.*

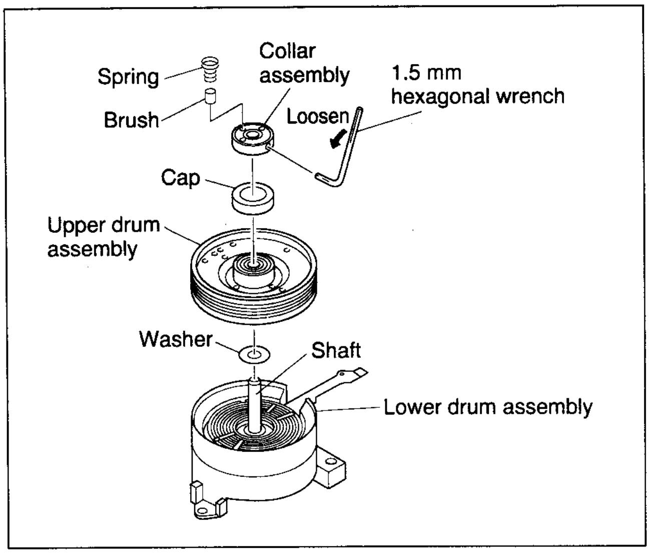

Spring
Collar assembly
1.5 mm hexagonal wrench
Brush
Loosen
Cap
Upper drum assembly
Washer
Shaft
Lower drum assembly

Fig. 2-2-39 Upper drum assembly-1

2. How to install

(1) Clean coil parts of the lower drum assembly and the newly installed upper drum assembly with an air brush in advance. (See Fig.2-2-40).
(2) Install a new washer and upper drum assembly on the drum shaft. (See Fig.2-2-39)

Note: *When replacing the upper drum assembly, replace it the together with the washer.*

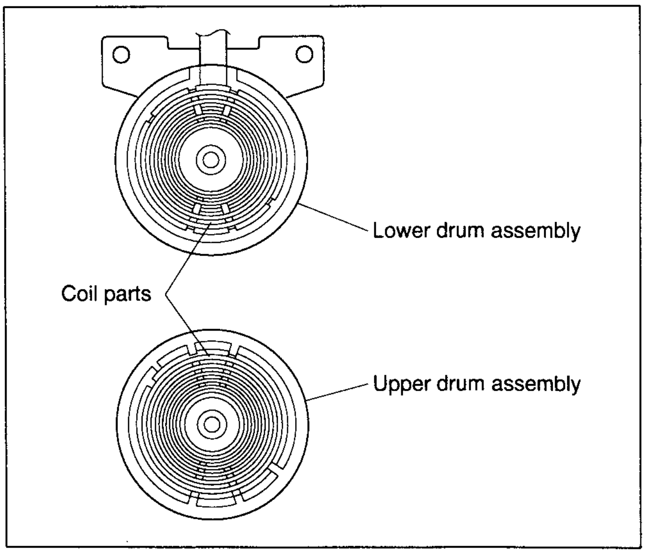

Lower drum assembly
Coil parts
Upper drum assembly

Fig. 2-2-40

(3) Position the collar assembly as indicated in Fig.2-2-41 while controlling its up- down movement.

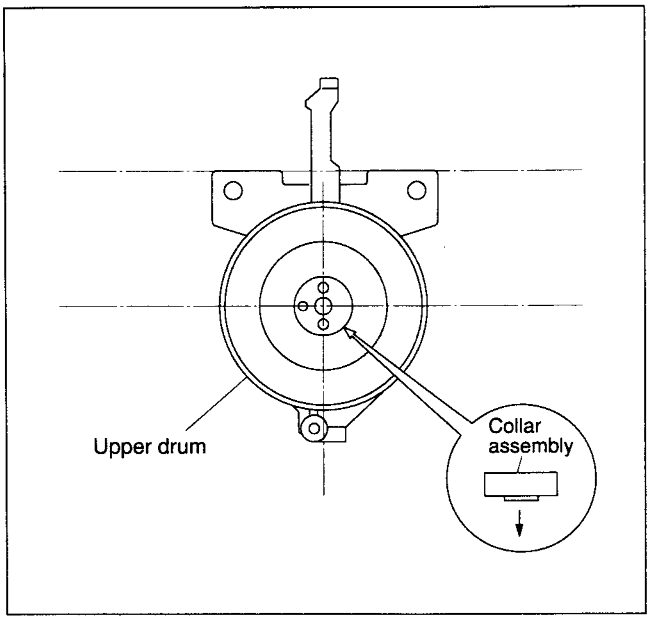

Upper drum
Collar assembly

Fig. 2-2-41

(4) Secure the collar assembly in position with a hexagonal wrench while pressing its top with the fingers.

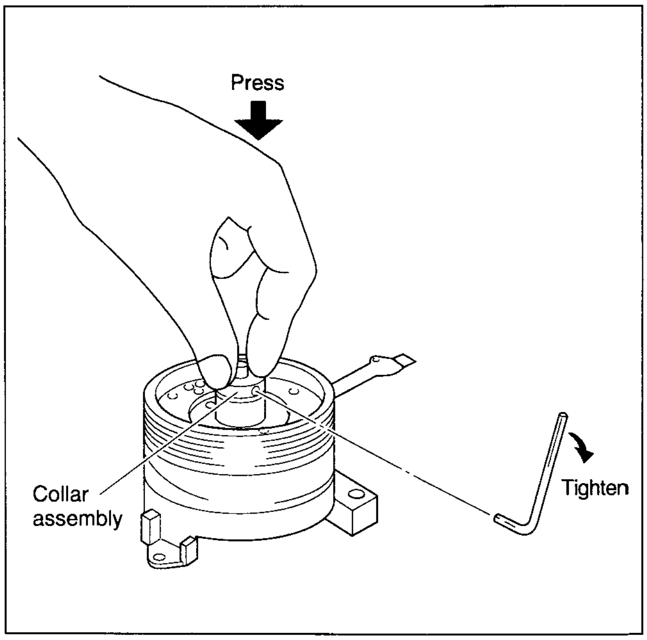

Press
Collar assembly
Tighten

Fig. 2-2-42

(5) After installation, gently turn the upper drum with your hand to make sure that it turns normally.
(6) Install the rotor assembly and stator assembly according to Fig. 2-2-36 and 2-2-38.
(7) When installation is complete, clean the upper drum assembly and lower the drum assembly and carry out the following adjustments.
    - PB switching point adjustment
    - Slow tracking adjustment
    - Compatibility adjustment (Be sure to check for compatibility for the EP mode.)

2.3 MAJOR PARTS INSTALLATION (PHASE MATCHING BETWEEN MECHANICAL PARTS)

2.3.1 Before Assembly of the Parts

The mechanism of this unit is closely linked with the rotary encoder and system controller circuits.
Since the system controller detects the status of mechanical operation in response to phases of the rotary encoder (internal switch positions), the mechanism may not operate properly unless such parts as the rotary encoder, control plate, loading arm assembly, control cam, cassette gear, limit gear, relay gear and drive gear are installed in their correct positions.
Especially, this model is not provided with any cassette housing assembly, so that cassette loading and unloading must be accomplished by operation of the cassette holder assembly. The latter is in turn driven by such parts as drive gear, relay gear and limit gear. Exercise enough care, therefore, to have the phases of all this gear matching one another.
Perform the installation of major parts (including phase matching) in the mechanism assembling mode as in the previous section.

2.3.2 Loading Arm Assembly (on the Supply or Take-up Side)

(1) Return the pole base assembly to the foremost position in the unloading direction.

(2) Install the loading arm assembly so that the register mark on the gear of the supply side loading arm is in alignment with the one on the take-up side loading arm as indicated in Fig. 2-3-1.
See 2.2.16 "2. How to install" of the foregoing section for details of installation.

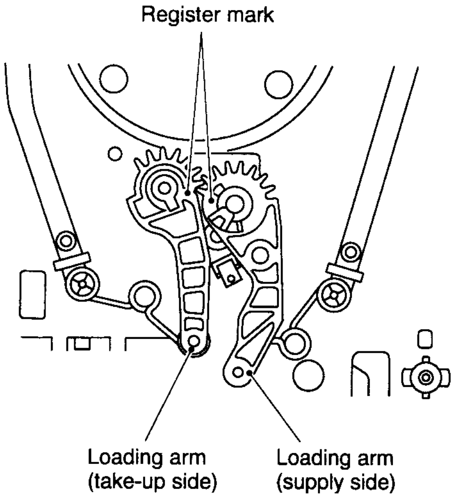


Fig. 2-3-1

2.3.3 Control Plate

(1) With register marks on the both loading arm assemblies in alignment, install the control plate so that the mark ▼ on the loading arm gear shaft is in alignment with mark E of the control plate. (See Fig.2-3-2)
See 2.2.15 "2. How to install" of the foregoing section for details of installation.

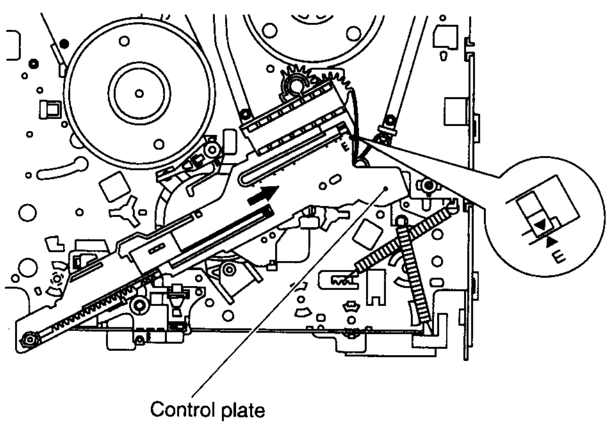


Fig. 2-3-2

2.3.4 Rotary Encoder

(1) Make sure that the mark E of the control plate is in alignment with the mark ▼ of the loading arm gear shaft and bring the register marks on the rotary encoder into alignment as indicated in Fig.2-3-3.

(2) Turn over the rotary encoder with its register marks kept in alignment and install it by fitting on the shaft of the rotary encoder guide and the positioning pin.

(3) Tighten the screw (A) to complete the installation.

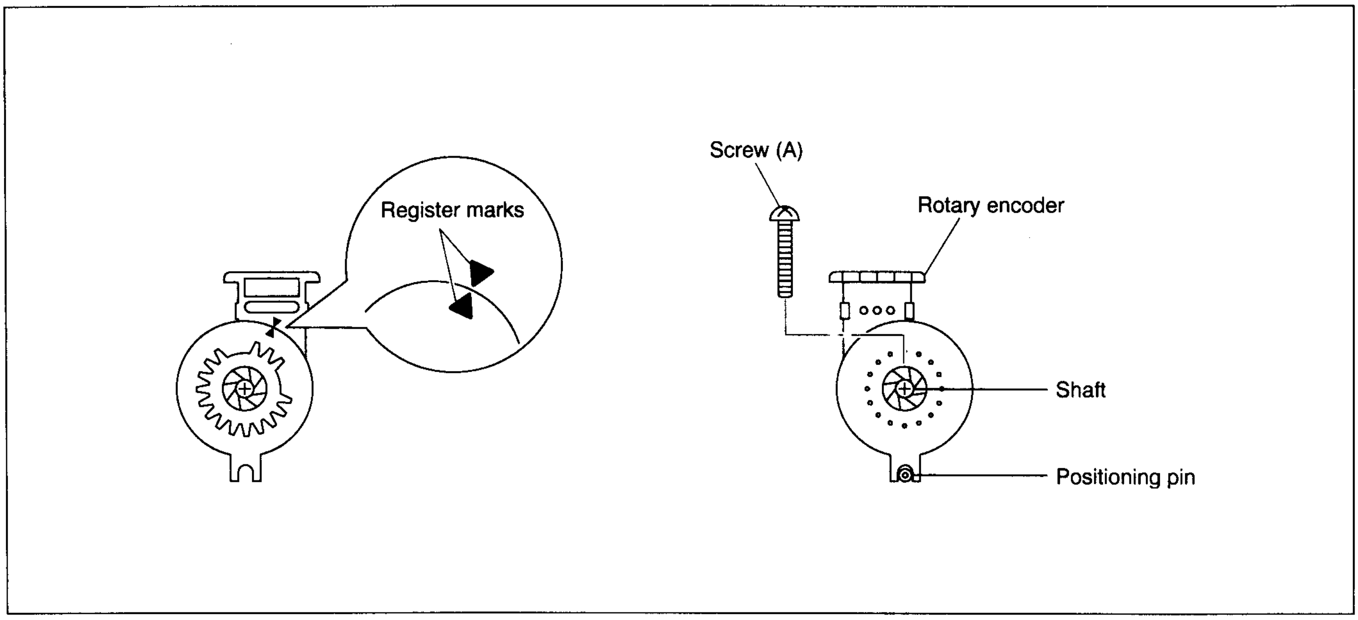

Register marks
Screw (A)
Rotary encoder
Shaft
Positioning pin

Fig. 2-3-3

2.3.5 Control Cam, Cassette Gear and Link Lever

(1) Install the control cam as indicated in Fig.2-3-4 making sure of the front and back side alignment.
Note here that the register hole of the control cam is in alignment with and allows passage through the register hole of the main deck. Perform fine-adjustment by turning the worm gear.

(2) Install the cassette gear by pushing it until it is locked with a clicking sound. (See Fig.2-3-4)

(3) Insert section (A) of the link lever into section (B) of the control plate as shown in Fig.2-3-5.

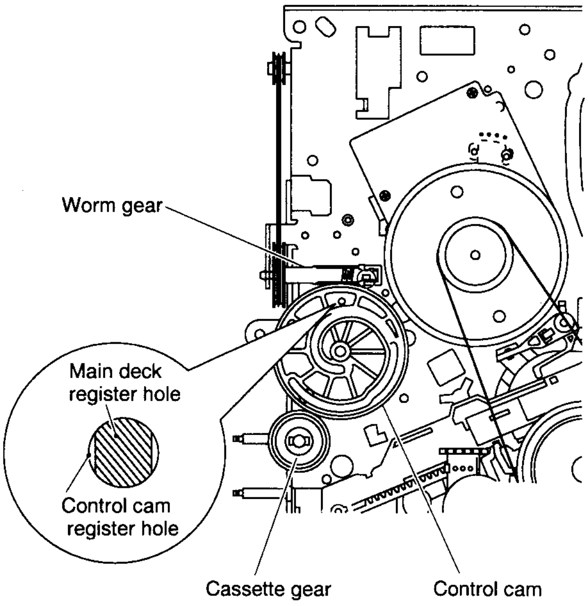

Worm gear
Main deck register hole
Control cam register hole
Cassette gear
Control cam

Fig. 2-3-4

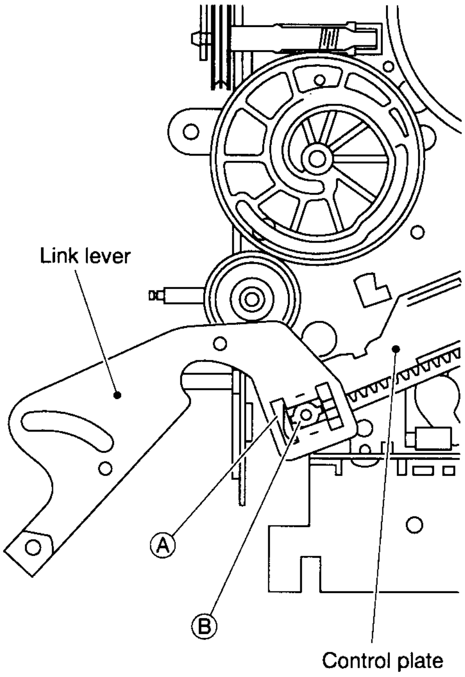

Link lever
Ⓐ
Ⓑ
Control plate

Fig. 2-3-5

(4) Turn the link lever clockwise and mount it on the control cam center shaft Ⓐ and the control cam left-side shaft Ⓑ. (See Fig.2-3-6).

(5) Fasten the slit washers at two points Ⓐ and Ⓑ.

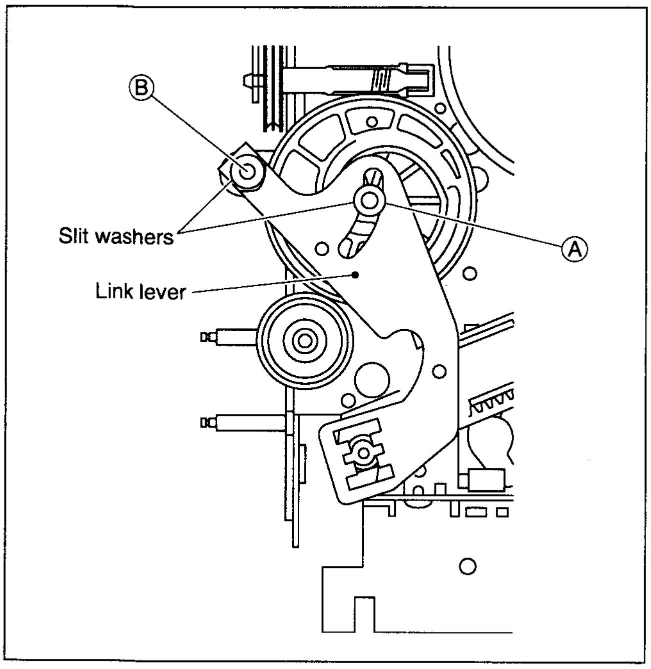


Fig. 2-3-6

2.3.6 Relay Gear, Limit Gear and Drive Gear

(1) Install the limit gear so that the notch at its outer circumference is in alignment with the register hole of the main deck.(See Fig.2-3-7)

(2) Install so that the notch at the outer circumference of the relay gear is in alignment with the notch of the main deck, and at the same time, that the hole A of the relay gear is in alignment with hole A of the limit gear and hole B of the relay gear with hole B of the drive gear. (See Fig.2-3-7)

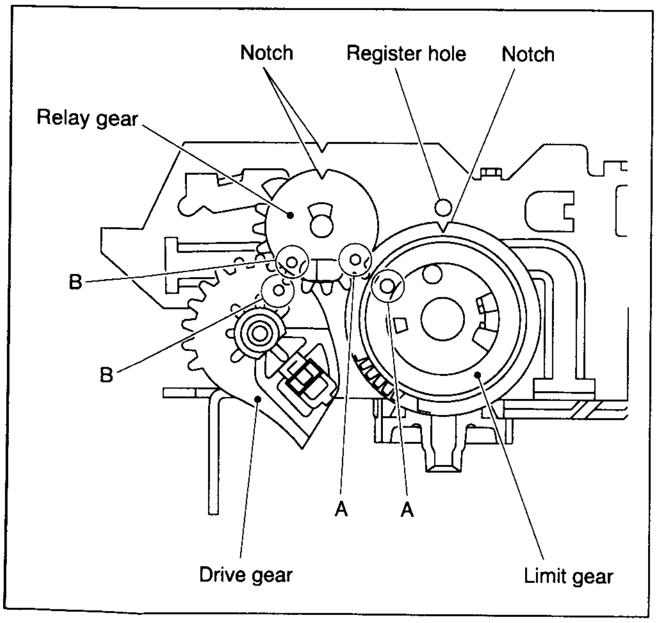


Fig. 2-3-7

2.4 COMPATIBILITY ADJUSTMENT

Notes:
- *Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the audio control head, drum assembly or any part of the tape transport system.*
- *To avoid any damage to the alignment tape while performing the compatibility adjustment, get a separate cassette tape (for recording and play back) ready to be used for checking the initial tape running behavior.*

2.4.1 Checking/Adjustment of FM Waveform Linearity

(1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.

(2) Playing the alignment tape MHPE, observe the FM waveform.

(3) Press the channel buttons (+) and (–) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)

(4) Make sure that there is no significant level drop of the FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (Fig.2-4-1)

(5) Slightly loosen the set screw under the pole base assembly with a 1.25 mm hexagonal wrench (Take care not to loosen too much). (Fig.2-4-2)

(6) Reduce the FM waveform while pressing the channel buttons (+, –) during playback. If a drop in level is found on the left side as shown in Fig.2-4-3, turn the guide roller of the pole base assembly (supply side) with the roller driver (PTU94002) to make the FM waveform linear.
If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the guide roller to make it linear. (Fig.2-4-3)

(7) Then play MHPE-L and make sure that the FM waveform varies in parallel and linearly with the tracking operation. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).

(8) After adjustment, tighten the set screw under the pole base assembly. (Take care not to tighten too much)

(9) After tightening the set screw, play the alignment tape MHPE and MHPE-L again to make sure that the FM waveform has correct variation.

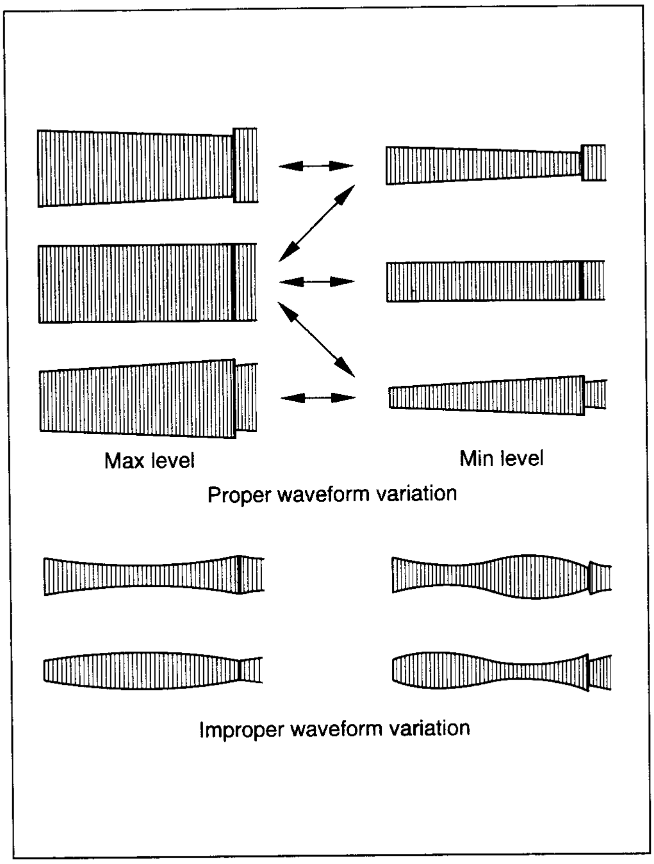

Max level
Min level
Proper waveform variation
Improper waveform variation

Fig. 2-4-1

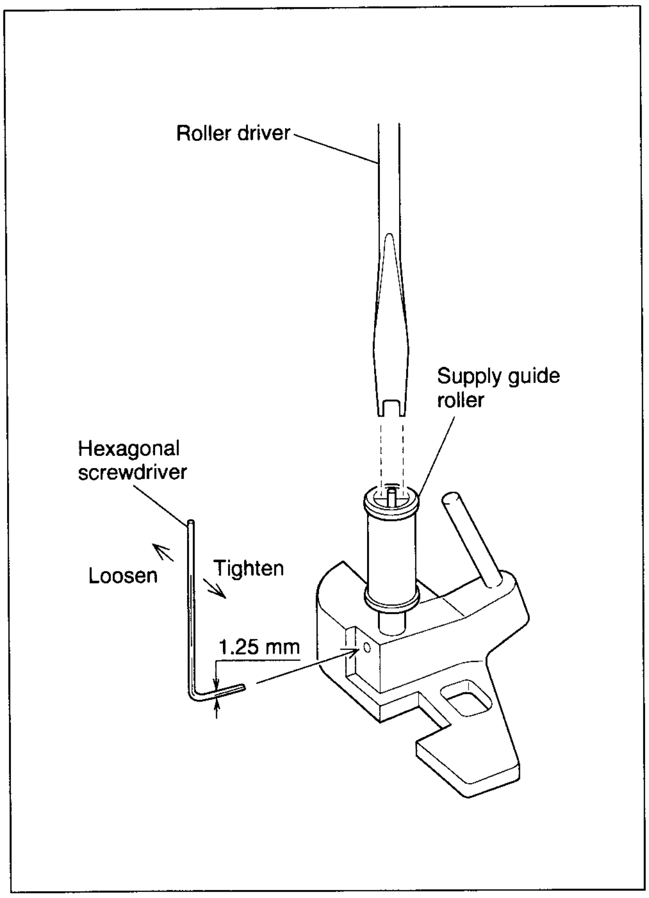

Roller driver
Supply guide roller
Hexagonal screwdriver
Loosen
Tighten
1.25 mm

Fig. 2-4-2

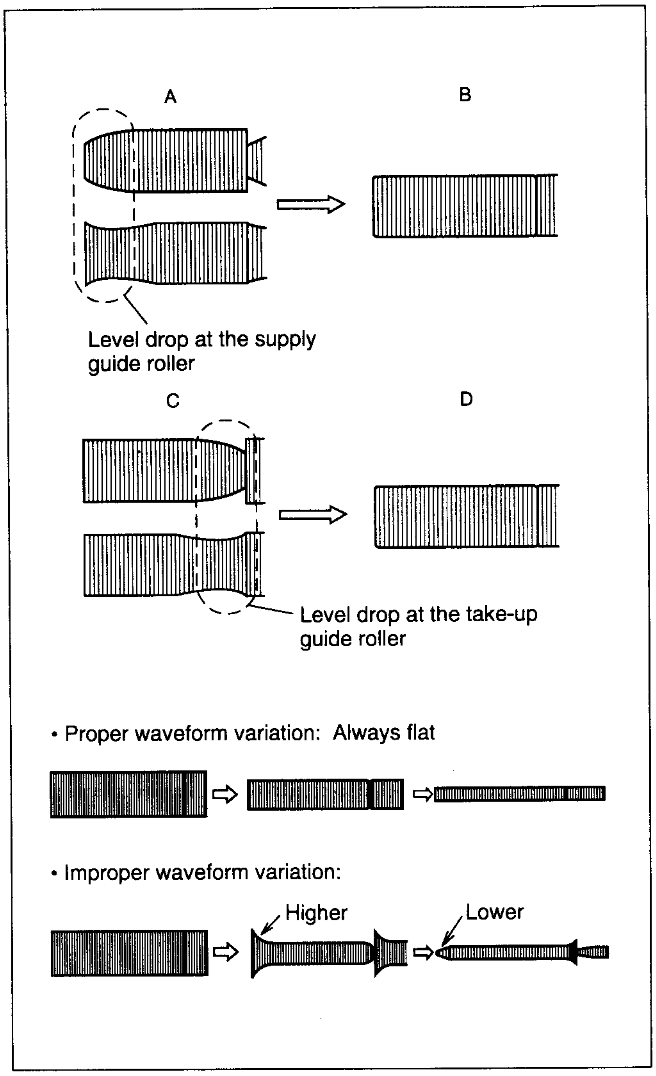

A
B
Level drop at the supply guide roller
C
D
Level drop at the take-up guide roller
• Proper waveform variation: Always flat
• Improper waveform variation:
Higher
Lower

Fig. 2-4-3

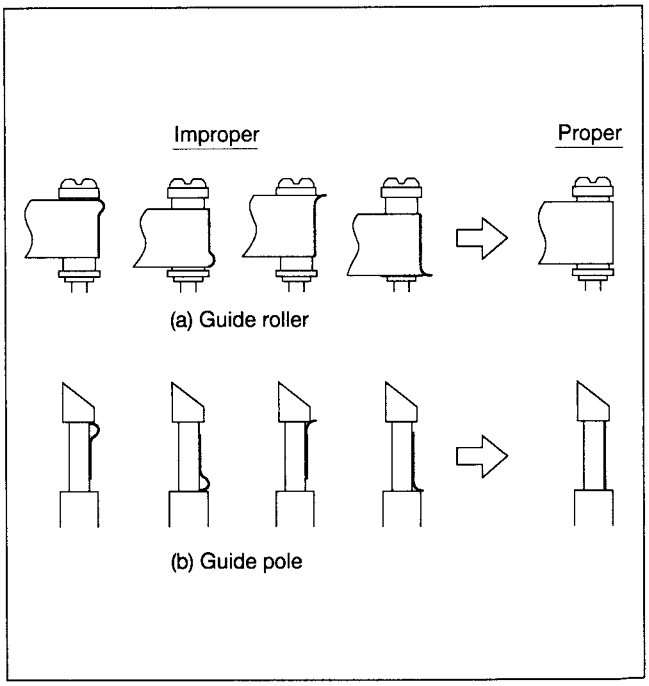

Improper
Proper
(a) Guide roller
(b) Guide pole

Fig. 2-4-4

2.4.2 Checking/Adjustment of the Height and Tilt of the Audio Control Head

Note: *Set a temporary level of the height of the A/C head in advance to make the adjustment easier. (See Fig.2-2-14)*

(1) Connect CH-1 of the oscilloscope to AUDIO OUT and CH-2 to TP4001 (CTL P) of the main board and observe the waveforms on both channels in the ALT mode.

(2) Play the alignment tape MHPE and adjust it by turning screws (1), (2) and (3) little by little until the waveform of both the audio output signal and the control pulse reach maximum. Screw (1) and screw (3) are for adjustment of tilt and screw (2) for azimuth.

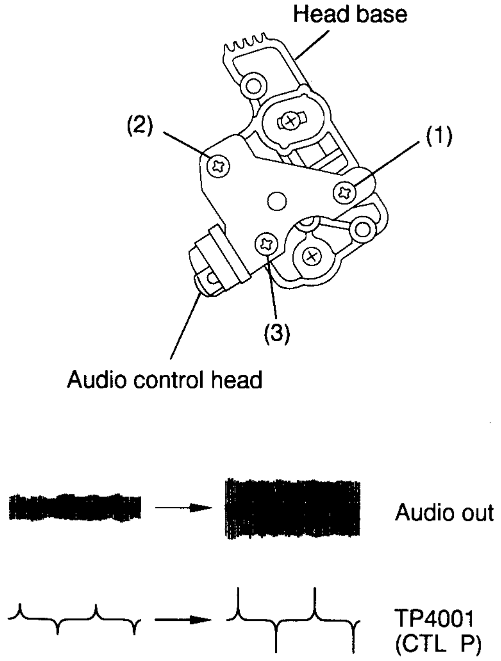


Fig. 2-4-5

2.4.3 Checking/Adjustment of the Audio Control Head Phase (X-Value)

(1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.

(2) Play the alignment tape MHPE and observe the FM waveforms.

(3) Press the channel buttons (+) and (–) buttons simultaneously during playback to enter the manual tracking mode (This also brings tracking to the center.)

(4) Loosen screws (4) and (5) so that the A/C head position bit (PTU94010) is set as indicated in Fig.2-4-6.

(5) Turn the A/C head position and first move the audio control head fully up to the capstan head. Then gradually return the audio control head toward the drum and stop it where the FM waveform reaches its maximum for the first time. Then tighten screw (4) temporarily.

(6) Then play the alignment tape MHPE-L.

(7) Press the channel buttons (+) and (–) buttons simultaneously during playback to enter the manual tracking mode (This also brings the tracking to the center.)

(8) Perform the tracking operation and make sure that the FM waveform is at its maximum.

(9) If it is not at maximum, loosen the temporarily tightened screw (4) and turn the A/C head position bit to bring the audio control head to a position, around where the waveform reaches its maximum for the first time. Then tighten screws (4) and (5).

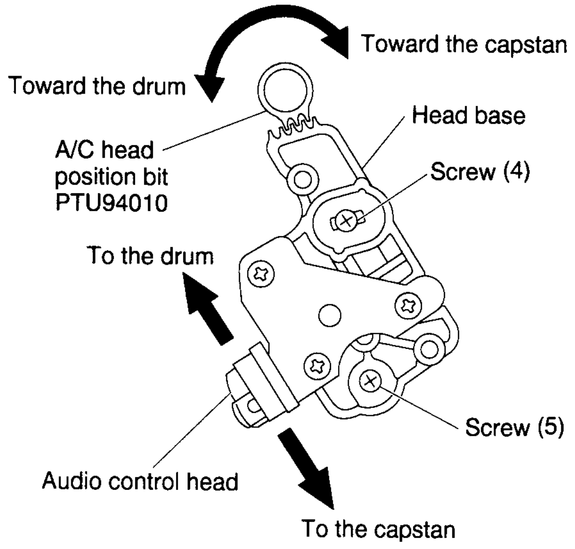


Fig. 2-4-6

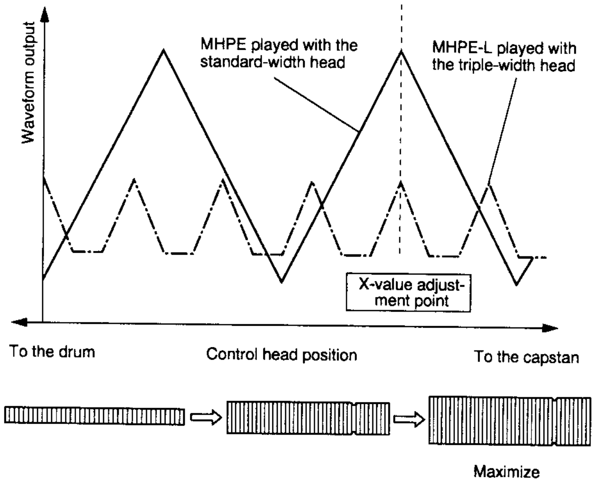


Fig. 2-4-7

2.4.4 LP mode Auto Tracking Preset

Note: *Set the remote control cable of the video recorder to A mode.*
(The unit set in B mode does not accept the remote control cable of the presetting unit.)

(1) Connect the oscilloscope to TP106(PB FM/COL) of the main board assembly and to TP111(D.FF) of the main board assembly for external sync connection.
(2) Playing the alignment tape MHPE and observing the FM waveform, make sure that the auto tracking operation is complete.
(3) Press the button "D" of the presetting unit twice.
(4) Make sure that the MHPE-L is not ejected.
(5) If ejected, again perform the phase (X-value) adjustment of the audio control head.

2.4.5 Checking/Adjustment of the Tension Pole

(1) Check the back tension cassette gauge (PUJ48076-2) to make sure that the indicator points to 29 - 46 g-cm.
(2) If the indicated value is outside this range, carry out the following adjustment steps.
    1) Select the mechanism servicing mode. (See 1.5 MECHANISM SERVICE MODE)
    2) While in the Play mode, turn the adjustment pin with a straight-slot screwdriver while taking care not to touch the 2.5 mm dia. pole. (See Fig.2-4-8).

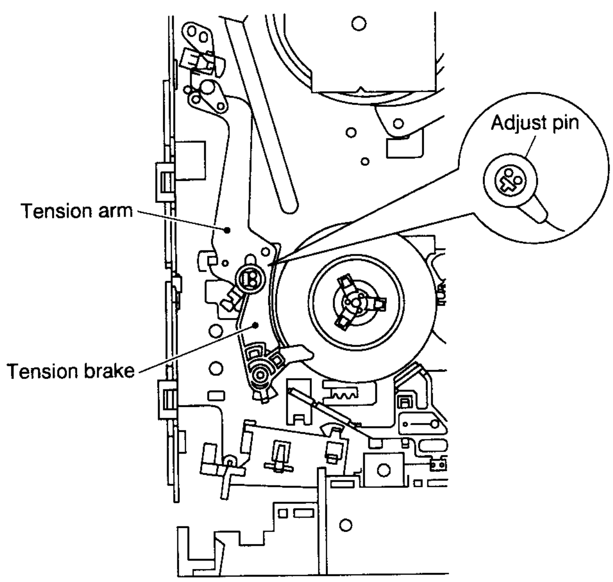


Fig. 2-4-8

2.4.6 Adjustment of the Tension Stud

(1) Adjust so that the left side of the tension stud is on the extension of the notch line of the main deck as indicated in Fig.2-4-9.

Note: *Adjustment is not usually necessary for the tension stud. Perform this adjustment only when it is out of position.*

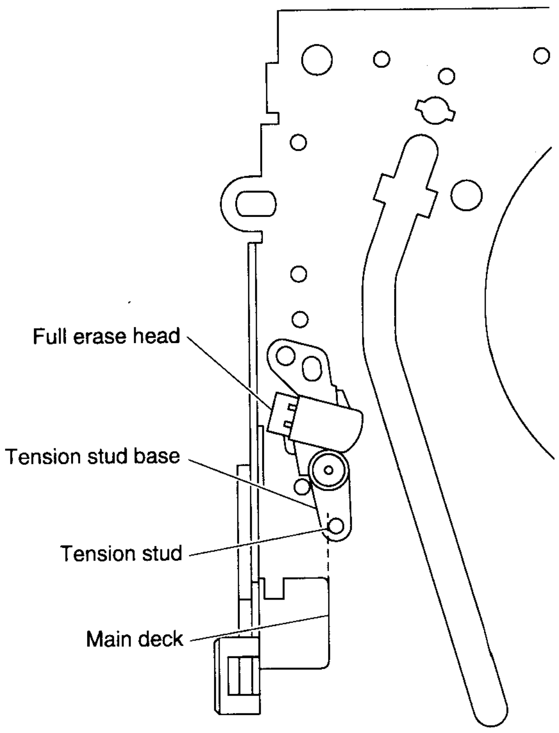


Fig. 2-4-9

2.4.7 Main Brake Torque Adjustment

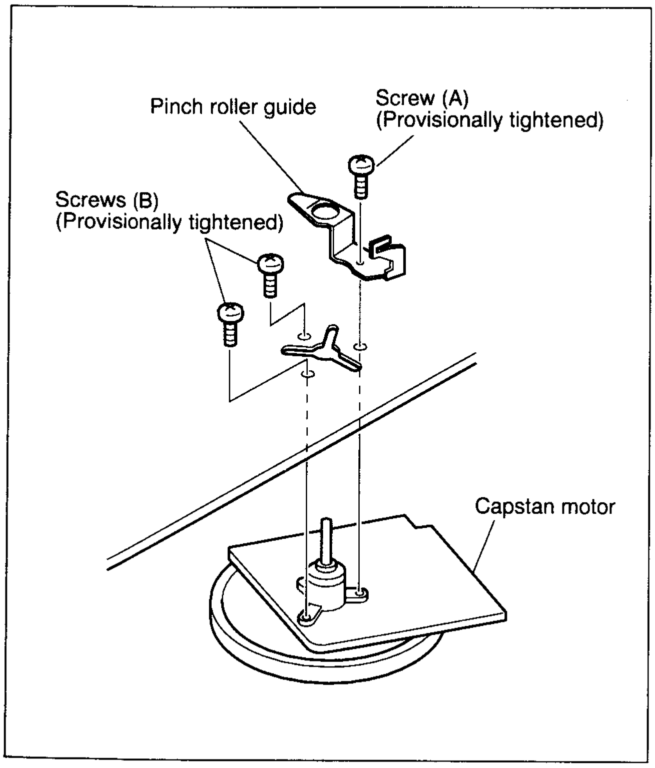
Note: Adjustment of the main brake torque is required after the adjustment pin has been removed or the main brake or the reel base on the supply or take-up side have been replaced, removed or attached.

(1) Rotate the pulley of the loading motor by hand to align the mark ▼ on the loading arm gear shaft with the ST marking on the control plate (i.e. set to the STOP mode position).
(2) Insert a torque gauge (PUJ48075-2) into the reel base on the side to be played, hold the torque gauge lightly, rotate it clockwise when measuring the supply side torque or counterclockwise when measuring the take-up side torque, and read the value indicated at the moment the reel base starts to slip.
(3) Make sure that the main brake torque values on the supply and take-up sides are both between 39.2 — 78.4 x 10^{-3} N-m (400 — 800 gf-cm). If the value is outside the specified range, adjust to the specified value by rotating the adjustment pin.
If an adjustment by using the adjustment pin is not possible, replace the main brake.

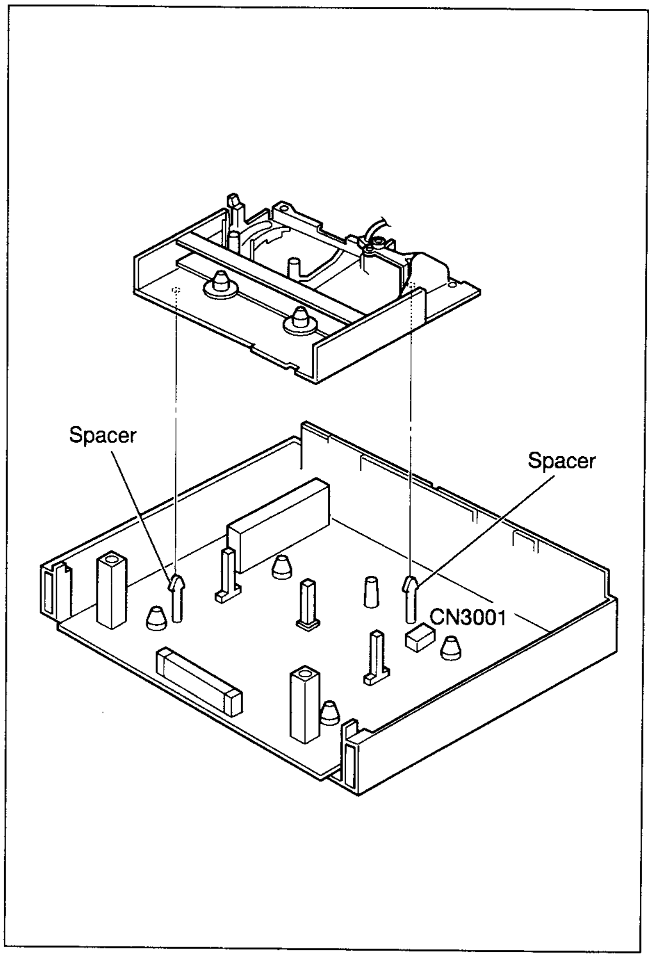
How to Mount the Capstan Motor (Centering the Mounting Position)

When the capstan motor has once been removed and then reinstalled out of the initial correct position in the rotational direction, the capstan motor current may be unstable during operation in high or low temperatures. This may result in greater Wow & Flutter and occasionally in power breakdown because of current over - load. Install the capstan motor while following the procedure given below.
(The capstan motor is centrally located when the unit is shipped from the factory.)

1. Provisionally tighten one screw (A) together the pinch roller guide and the two screws (B) securing the capstan motor.



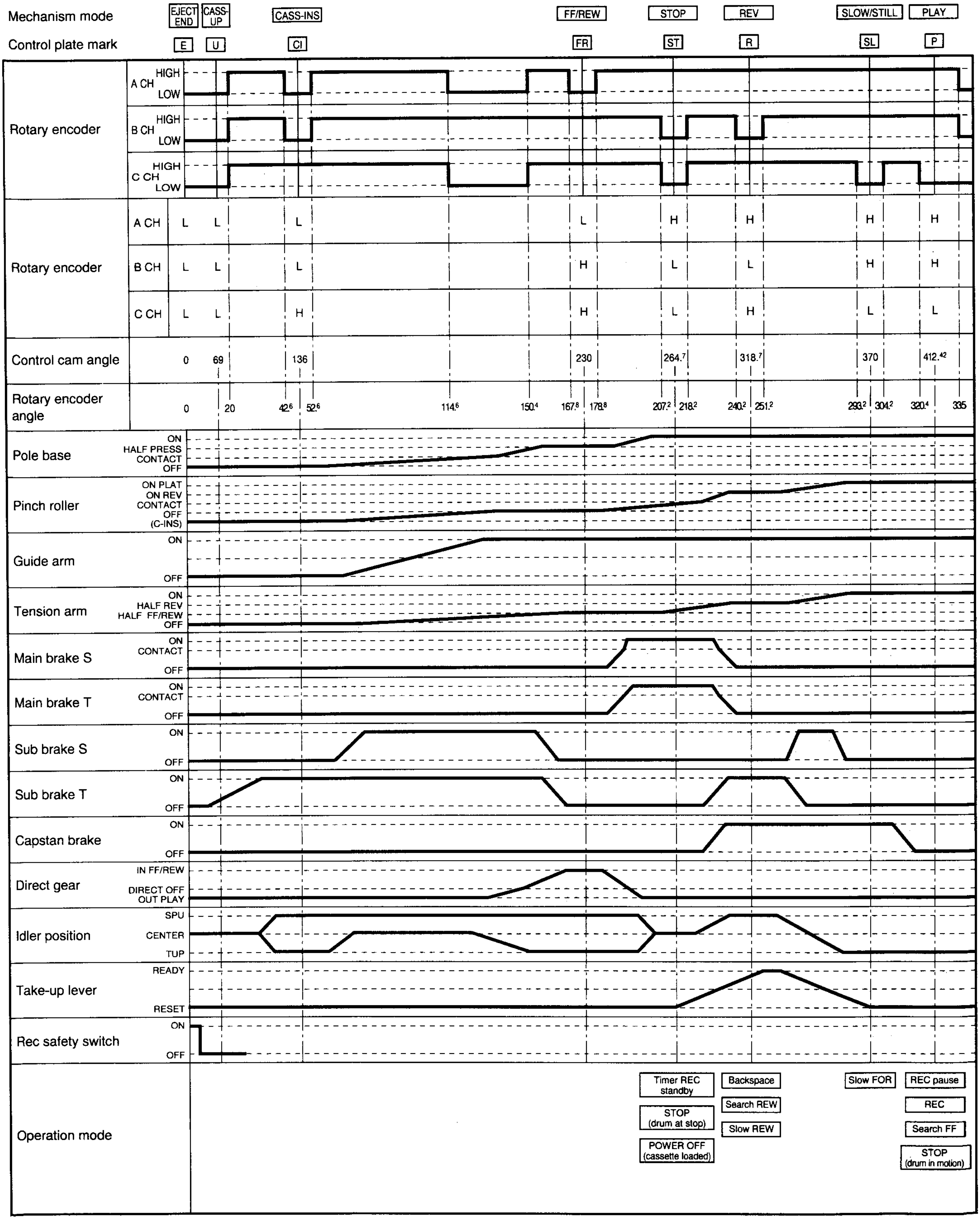
2. Install the mechanism to which the capstan motor is provisionally fastened on the bottom chassis which incorporates the Main board assembly. (No need to tighten the screws for mounting the mechanism)
   Make sure that all the connectors for the mechanism and the Main board are correctly installed.



3. Securely tighten the three screws (A), especially making sure that the connector CN3001 of the capstan motor is correctly mounted.

Note: *When the capstan motor has been replaced with a new one, perform recording in the LP mode for at least 2 minutes at normal temperatures immediately before starting the FF/REW or SEARCH operations (Aging).*

Mechanism Timing Chart


Mechanism mode
EJECT END
CASS-UP
CASS-INS
FF/REW
STOP
REV
SLOW/STILL
PLAY
Control plate mark
E
U
CI
FR
ST
R
SL
P
Rotary encoder
A CH
B CH
C CH
HIGH
LOW
L
H
Control cam angle
0
69
136
230
264.7
318.7
370
412.42
Rotary encoder angle
0
20
42.6
52.6
114.6
150.4
167.8
178.8
207.2
218.2
240.2
251.2
293.2
304.2
320.4
335
Pole base
ON
HALF PRESS
CONTACT
OFF
Pinch roller
ON PLAT
ON REV
CONTACT
OFF
(C-INS)
Guide arm
ON
OFF
Tension arm
ON
HALF REV
HALF FF/REW
OFF
Main brake S
ON
CONTACT
OFF
Main brake T
ON
CONTACT
OFF
Sub brake S
ON
OFF
Sub brake T
ON
OFF
Capstan brake
ON
OFF
Direct gear
IN FF/REW
DIRECT OFF
OUT PLAY
Idler position
SPU
CENTER
TUP
Take-up lever
READY
RESET
Rec safety switch
ON
OFF
Operation mode
Timer REC standby
STOP (drum at stop)
POWER OFF (cassette loaded)
Backspace
Search REW
Slow REW
Slow FOR
REC pause
REC
Search FF
STOP (drum in motion)

SECTION 3
ELECTRICAL ADJUSTMENT

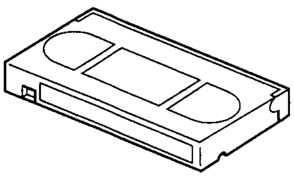
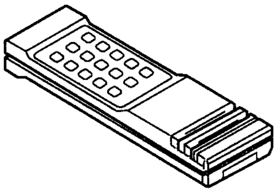
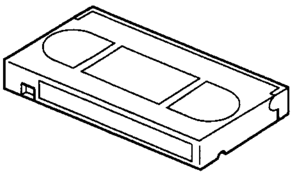
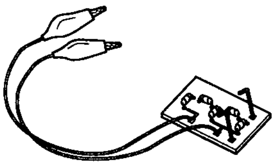
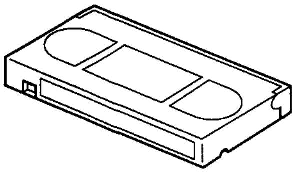
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

① Colour television or monitor
② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
③ Frequency counter
④ Digital voltmeter
⑤ Signal generator: RF/IF sweep/marker
⑥ Signal generator: PAL colour bar, stairstep
⑦ Recording tape
⑧ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP, stairstep) MHPE	Presetting unit PTU94008
	
Alignment tape (S-VHS, SP/LP, colour bar) MH-2H	LPF PTU93006
	
Alignment tape (SP, stairstep) MHP	
	

3.1.3 Colour bar signal,colour bar pattern

- PAL colour bar signal

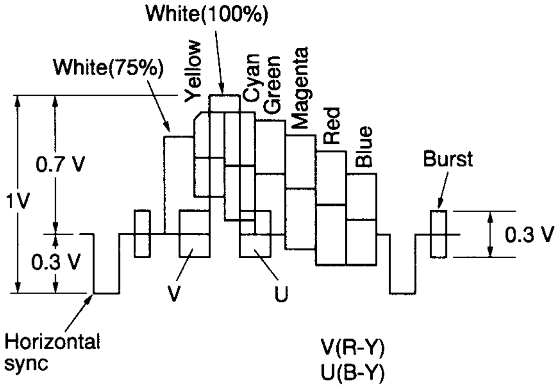


Fig.3-1-1 PAL colour bar signal waveform

- PAL colour bar pattern

(75%) →

White	Yellow	Cyan	Green	Magenta	Red	Blue
V	U	White 100%			Black	

Fig.3-1-2 PAL colour bar pattern

Note:
The system control circuit of this model has an automatic recognition about the ON-OFF control of the DOCTOR SYSTEM.

3.2 SERVO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *Set VCR to the mode A by remote controller.*
- *Use only buttons "O", depressing other buttons during adjustment may cause adjustment errors.*

3.2.1 PB switching point

Signal	•Alignment tape [MHPE], Stairstep •Alignment tape [MHP], Stairstep
Mode	•PB •TBC : OFF
Equipment	•Oscilloscope
Measurement point	•VIDEO OUT TERMINAL
Trigger slope (-)	•TP111(DRUM FF)
Adjustment tool	•Presetting unit [PTU94008]
Specification	•8.0 ± 0.5H [MHPE] •7.5 ± 0.5H [MHP]

(1) Playback the stairstep signal of the alignment tape [MHPE].
(2) Connect an oscilloscope to VIDEO OUT TERMINAL and TP111 (negative slope), and then observe VIDEO OUT TERMINAL.
(3) Adjust by pressing "E" or "F" buttons of the presetting unit so that the switching point becomes 8.0 ± 0.5H from V.sync.
(4) Depress the STOP button.
(5) Playback the stairstep signal of the alignment tape[MHP].
(6) Adjust by pressing "E" or "F" buttons of the presetting unit so that the switching point becomes 7.5 ± 0.5H from V.sync.
(7) Depress the STOP button.

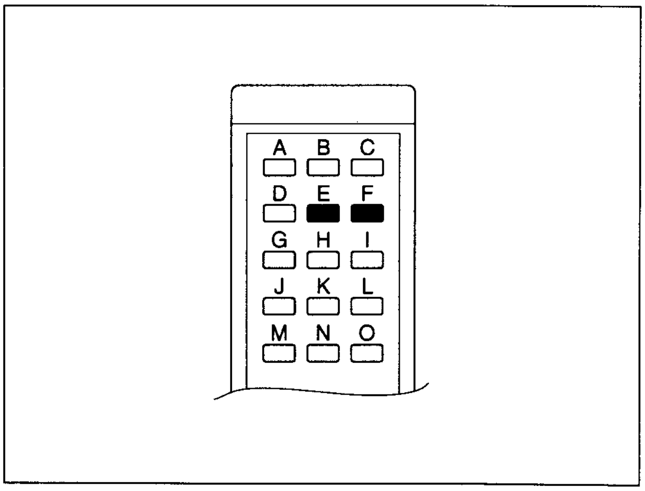


Fig. 3-2-1 Presetting unit

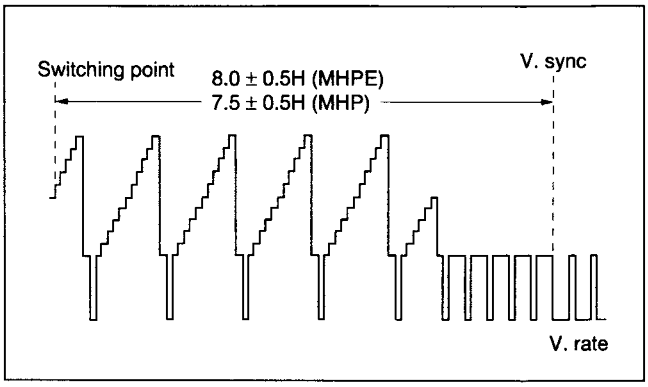


Fig. 3-2-2 PB switching point

3.2.2 Slow tracking preset

Signal	•Tuner or colour bar
Mode	•SP/LP : REC → PB(SLOW) •S-VHS
Equipment	•TV-Monitor
Adjustment tool	•Presetting unit (PTU94008]
Specification	•Minimum noise

Notes:
- *Set VCR to the mode A by remote controller.*
- *Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.*

(1) Record a colour bar signal in the SP mode.
(2) Playback recorded signal on the FWD slow mode.
(3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B " or "C" buttons of the presetting unit.
(4) Depress the STOP button.
(5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
(6) Repeat steps (3) to (5) in the REV slow mode.
(7) Repeat steps (2) to (6) in the LP mode.

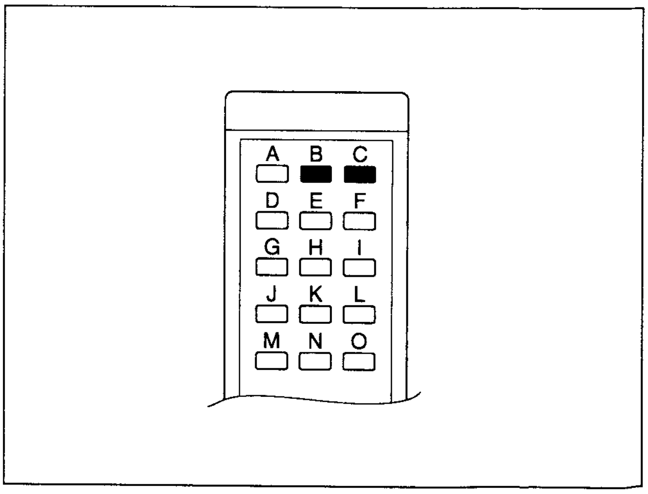


Fig. 3-2-3 Presetting unit

3.2.3 Dynamic drum preset

Signal	• Alignment tape [MHPE-L], Stairstep
Mode	• Automatic tracking OFF
Equipment	• Oscilloscope
Measurement point	• TP106 (PB FM)
Trigger slope (+)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit [PTU94008] • Digit -key remote controller
Specification	• FM waveform flat

Note : *Set VCR to the mode A by remote controller.*

(1) Connect an oscilloscope to TP106 and external trigger from TP111 (positive slope).
(2) Playback the LP stairstep portion of the alignment tape at LP 2 x mode.
(3) Set the automatic tracking control to the OFF by simultaneously pressing the TV PROG "–" and "+" buttons.
(4) Adjust for maximum level of the playback FM waveform by depressing TV PROG "–" or "+" buttonson.
(5) Adjust by pressing "M+D" or "M+E" buttons of the presetting unit for the FM waveform is flat as shown in Fig. 3-2-5.
(6) Adjust for half level of the playback FM waveform from maximum level by depressing TV PROG "–" or "+" buttons.
(7) Readjust by pressing "M+D" or "M+E" buttons of the presetting unit for the FM waveform is flat as shown in Fig. 3-2-5.
(8) Record the colour bar signal by LP mode and play it back in the LP FWD slow mode.
(9) Repeat steps (4) and (5).
(10) Depress the STOP button.

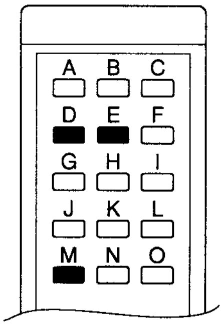


Fig. 3-2-4 Presetting unit

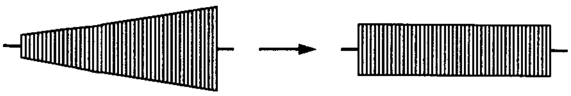


Fig. 3-2-5 PB FM

3.3 VIDEO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *VIDEO circuit adjustments are performed by the EVR system by use of the presetting unit and digit-key remote controller.*
- *S-INPUT means Y/C separated video signal in the chart.*
- *Set VCR to the mode A by remote controller.*

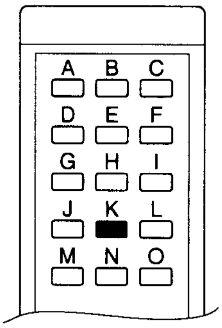


Fig. 3-3-1 Presetting unit

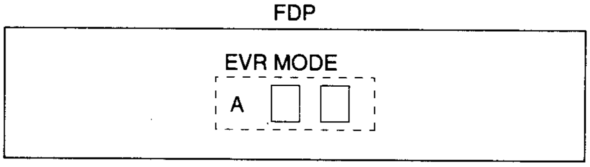


Fig. 3-3-2 EVR mode

3.3.1 Y level

Signal	• Colour bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

(1) Connect an oscilloscope to Y OUT TERMINAL.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 11" pressing 1 digit key twice of the remote controller.
(4) Adjust TV PROG "+" or "–" button for 1.00 ± 0.03 Vp-p (See Fig. 3-3-3).
(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

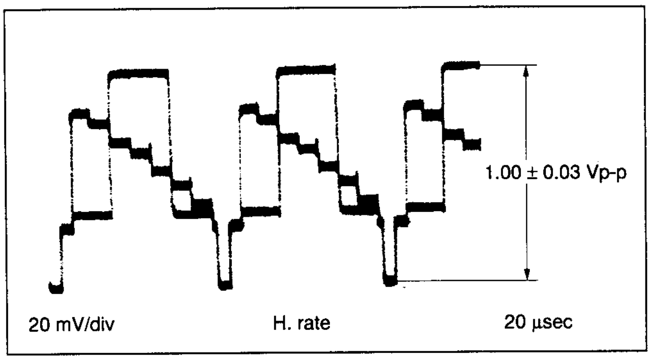


Fig. 3-3-3 EE Y level

3.3.2 SP/LP REC colour level

Signal	• Alignment tape [MH-2H] • Colour bar
Mode	• PB • REC → PB : SP/LP • S-VHS
Equipment	• Oscilloscope
Measurement point	• PB colour out
Trigger slope (−)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit • Digit-key remote controller • LPF fixture (PTU93006)
EVR mode	• A : 2
Specification	• "B" x 150 ± 5% : SP • "B" x 110 ± 5% : LP

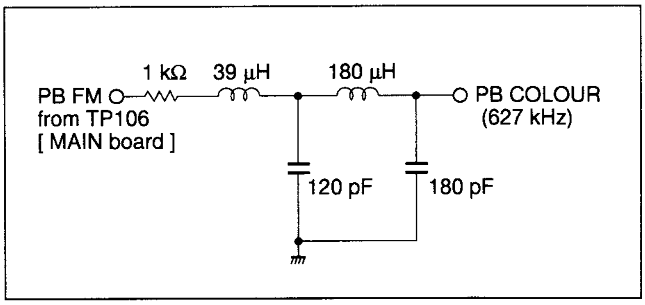


Fig. 3-3-4 LPF

(1) Connect an oscilloscope to PB COLOUR of a LPF(refer to Fig. 3-3-4) and TP111(negative slope) on the MAIN board.
(2) Playback the SP colour bar signal of MH-2H alignment tape.
(3) Set the tracking of the Front panel to the Auto tracking off position by simultaneously pressing the TV PROG "+" and "−" buttons.
(4) Adjust by pressing the TV PROG "+" or "−" buttons of the Front panel for maximum level of the colour waveform and make a note of the higher colour level "B".
(5) Press the STOP/EJECT button and eject the MH-2H alignment tape.
(6) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(7) Set "A : 2" by pressing 2 digit key of the remote controller.
(8) Before recording, adjust TV PROG "+" or "−" button of the remote controller so that the higher level channel becomes 150 ± 5% : SP (110 ± 5% : LP) of the note "B" level during playback as shown in Fig. 3-3-5.
(9) Record a colour bar signal in SP (LP) mode, and playback recorded colour bar signal.
(10) Set normal VCR mode by pressing "K" button again so adjustment data is memorized.

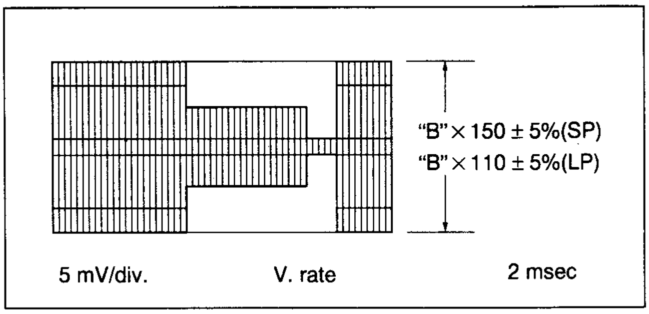


Fig. 3-3-5 REC colour level

3.3.3 PB Y level (S-VHS/VHS)

Signal	• Colour bar • S-VHS/VHS
Mode	• PB : SP
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Adjustment tool	• Presetting unit • Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

(1) Connect an oscilloscope to Y OUT TERMINAL.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 11" pressing 1 digit key twice of the remote controller.
(4) Record a colour bar signal in the S-VHS mode, and playback recorded colour bar signal.
(5) Adjust TV PROG "+" or "−" button for 1.00 ± 0.03 Vp-p as shown in Fig. 3-3-6.
(6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.
(7) Repeat steps (1) to (6) in the VHS mode.

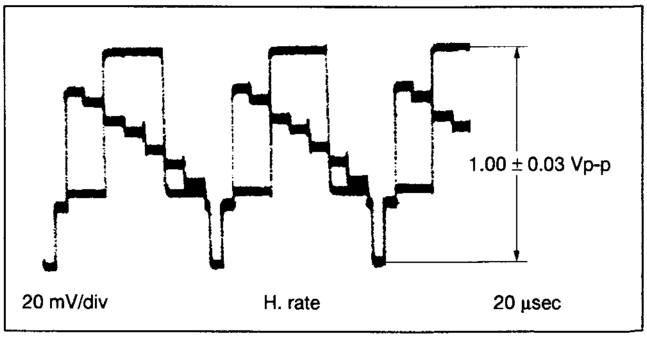


Fig. 3-3-6 PB Y level

3.3.4 S-VHS VIDEO EQ

Signal	• S INPUT • Video sweep
Mode	• REC → PB : SP/LP • S-VHS • EDIT REC : OFF PB : ON
Equipment	• Oscilloscope
Measurement point	• Y OUT TERMINAL(75Ω TERMINATION)
Trigger slope (–)	• TP111 (DRUM FF)
Adjustment tool	• Presetting unit • Digit-key remote controller
Specification	• 3.6 ± 0.2 scale : SP • 3.2 ± 0.2 scale : LP

(1) Connect an oscilloscope to Y OUT TERMINAL and TP111 (negative slope).
(2) Record a video sweep signal in S-VHS SP mode, then play it back.
(3) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(4) Set "A : 3" by pressing 3 digit key of the remote controller.
(5) When assuming the 100 KHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust TV PROG "+" or "–" button on the front panel or the 10-key remote control so that the 3.00 MHz is set at 3.6 ± 0.2 scale (–2 ± 0.5 dB) while observing Y OUT of the S output (See Fig. 3-3-7).
(6) The EVR mode is canceled by pressing the "K" button after the adjustment, and the adjusted value is stored.
(7) Also, it records and plays back the sweep signal in the LP mode.
(8) Carry out the step (3) and (4).
(9) When assuming the 100 kHz sweep signal marker on the bigger channel is four scales on the oscilloscope, adjust TV PROG "+" or "–" button on the front panel or the 10-key remote control so that the 3.00 MHz is set at 3.2 ± 0.2 scale (–3 ± 0.5 dB) while observing Y OUT of the S output (See Fig. 3-3-7).

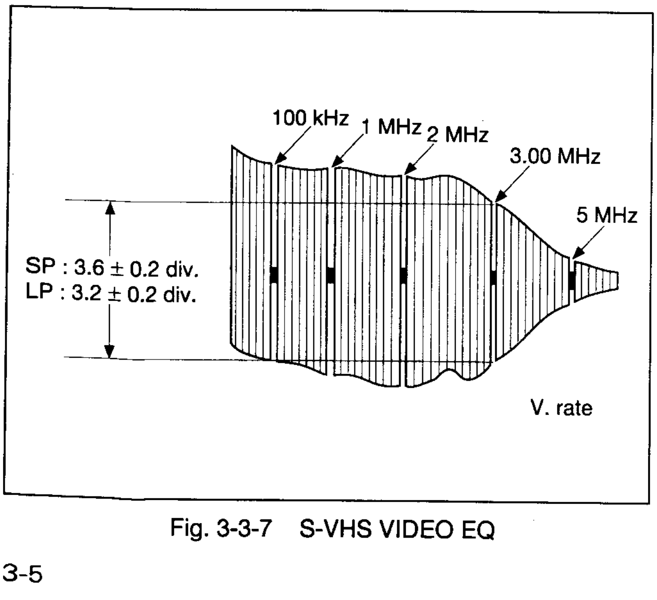


Fig. 3-3-7 S-VHS VIDEO EQ

3.3.5 D/A level

Signal	• Colour bar • S-VHS
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• CN1003-3 pin (Y OUT) [3D S-VHS board]
Adjustment part	• VR1401 (D/A LEVEL) [3D S-VHS board]
Specification (NOTE)	• 2.05 Vp-p (REFERENCE VALUE)

(1) Connect the oscilloscope to the CN1003-3 pin(Y OUT) on the 3D S-VHS board.
(2) Confirm the Y level value during external S input.
(3) Switch the input signal to the external input, then adjust the VR1401 on the 3D S-VHS board so that the Y level value becomes the same level value which was confirmed at the step (2).

Note: • *The adjusted value of 2.05 Vp-p is a reference value which should be obtained during external S input. The value should be adjusted to the one which was confirmed at step (2).*

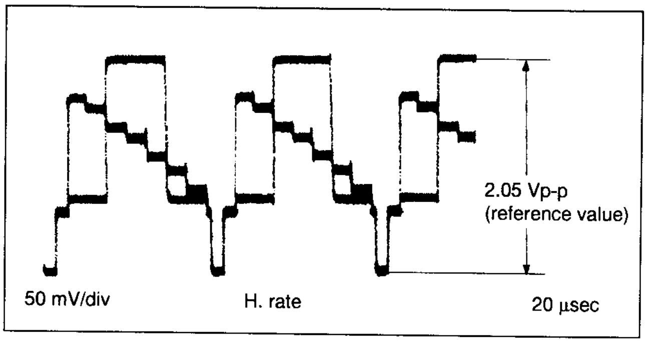


Fig. 3-3-8 D/A LEVEL

3.3.6 Pilot burst level

Signal	• Colour bar • S-VHS
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• TP1001 (FSC PHASE) [3D S-VHS board]
Adjustment part	• VR1002 (P. BURST LEVEL ADJ) [3D S-VHS board]
Specification	• "B" x 110 ± 10%

(1) Connect the oscilloscope to the TP1001 (FSC PHASE) on the 3D S-VHS board.
(2) Load an S-VHS tape then set the unit to the S-VHS EE mode.
(3) Adjust the VR1002 of the 3D S-VHS so that the pilot burst level becomes "B" x 110 ±10% against the value of the burst level "B".

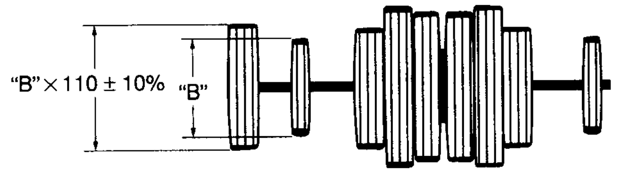


Fig. 3-3-9 PILOT BURST LEVEL

3.3.7 Auto picture

Signal	• Monoscope
Mode	• REC → PB : SP/LP • S-VHS/VHS
Adjustment tool	• Presetting unit [PTU94008]
Specification	• STOP mode

(1) Record a monoscope signal in the S-VHS/SP mode.
(2) Playback the recorded signal.
(3) Press the "L" button of the presetting unit during playback.
(4) Confirm that VCR will go into the STOP mode.
(5) Repeat steps (2) to (4) in the LP mode.
(6) Repeat steps (1) to (5) in the VHS mode.

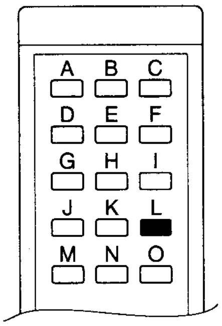


Fig. 3-3-10 Presetting unit

3.4 ON SCREEN CIRCUIT

Note: • *Set VCR to the mode A by remote controller.*

3.4.1 Character position

Signal	• No signal
Mode	• EE
Equipment	• TV-monitor
Adjustment tool	• Presetting unit [PTU94008] • Digit-key remote controller
Specification	• Character center

(1) Press the MENU button and display the on screen character.
(2) Observe TV-monitor and center position of character by pressing "H" button of the presetting unit.

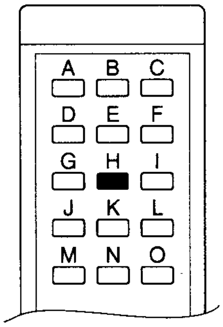


Fig. 3-4-1 Presetting unit

3.5 SYSCON CIRCUIT

Notes: • *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
• *When perform this adjustment,remove the MECHANISM assembly.*

3.5.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TL3001 round (SYS. CLK)
Adjustment part	• C3018 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 µsec.]

(1) Connect the frequency counter to TL3001(SYS.CLK) round and GND.
(2) Connect the short wire between TL3003(TEST) round and Vcc(5V).
(3) Short the leads of capacitor C3015 once in order to reset the IC3001.
(4) Disconnect the short wire between TL3003 and Vcc then connect it again quickly.
(5) Adjust the C3018 trimmer capacitor so that the output from TL3001(SYS.CLK) falls within the 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 μsec.) range.

3.6 AUDIO CIRCUIT

Notes: • *Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.*
• *This adjustment should be done after the video circuit SP and LP REC colour level are adjusted.*
• *GND(Ground) should be taken from the tuner board shield.*

3.6.1 REC FM level

Signal	• AUX • VIDEO : Colour bar • AUDIO : No signal
Mode	• REC → PB : LP • S-VHS
Equipment	• Oscilloscope
Measurement point	• TP2253 (A. PB. FM)
Trigger slope (–)	• TP111 (DRUM FF)
Adjustment part	• VR2251 (FMA REC FM)
Specification	• 600 ± 100 mVp-p

(1) Connect an oscilloscope to TP2253.
(2) Record a colour bar signal without an audio signal in S-VHS LP mode then playback.
(3) Adjust VR2251 for 600 mVp-p playback level of higher channel level before recording.
(4) Confirm that the lower channel level is more than 450 mVp-p.

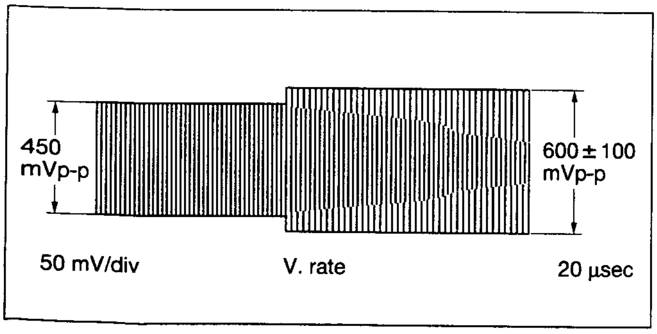


Fig. 3-6-1 Audio REC FM level

3.7 DEMODULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the DEMODULATOR BOARD.*

3.7.1 Stereo Separation

Signal	• Sweep generator output (90 dBμ, 1 kHz)
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• CN6701-pin 8
Adjustment part	• VR6701 (SEPARATION 1)
Specification	• Minimum level

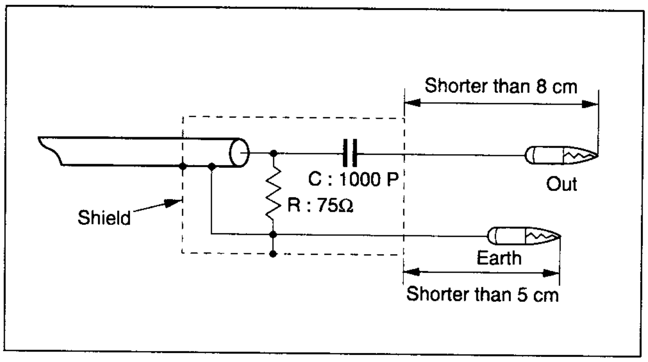


Fig. 3-7-1 Sweeper probe

(1) Use a sweeper probe as shown in Fig. 3-7-1.
(2) Supply 1 kHz R-only modulated IF signal to IF terminal of U/V tuner (front end).
(3) Connect an oscilloscope to CN6701-pin 8.
(4) Adjust VR6701 for minimum output level.

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

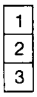
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

2. Indications of control voltage

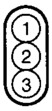
AUX : Active at high

$\overline{\text{AUX}}$ or AUX(L) : Active at low

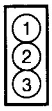
3. Interpreting Connector indications



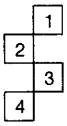
Removable connector



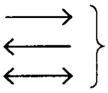
Wire soldered directly on board



Non-removable Board connector



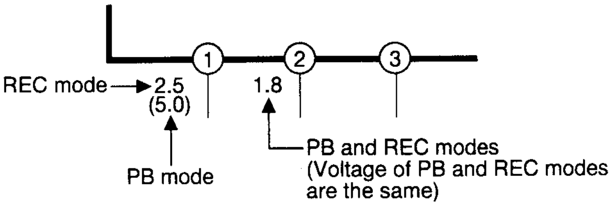
Board to Board



Connected pattern on board
The arrows indicate signal path

4. Voltage measurement

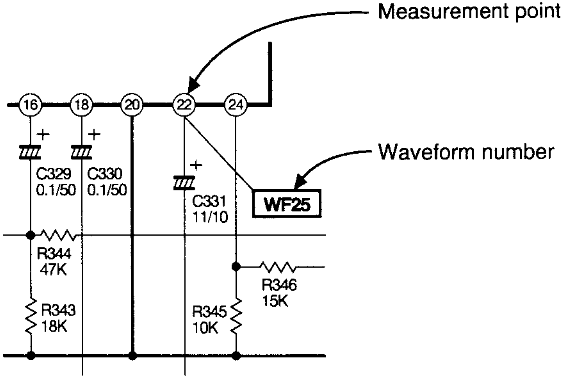
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


1
2
3
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

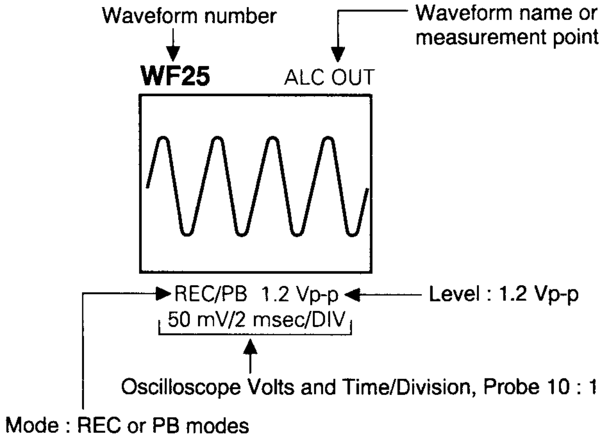
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.


Measurement point
16
18
20
22
24
Waveform number
C329 0.1/50
C330 0.1/50
C331 11/10
WF25
R344 47K
R346 15K
R343 18K
R345 10K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
Level : 1.2 Vp-p
50 mV/2 msec/DIV
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.

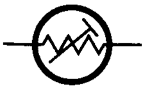
⇨	Playback signal path
⇨▶	Playback and recording signal path
➡	Recording signal path (including E-E signal path)
⇨▷	Capstan servo path
➡▶	Drum servo path

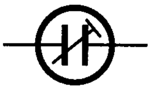
(Example)

⇨ R-Y	Playback R-Y signal path
➡ Y	Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.





8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

CIRCUIT BOARD NOTES

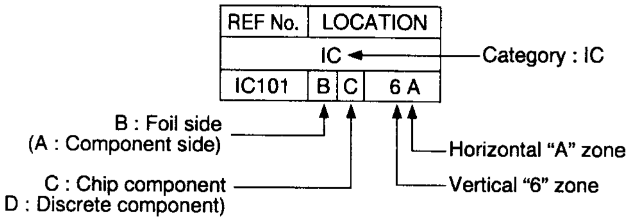
1. Foil and Component sides

1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.

2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

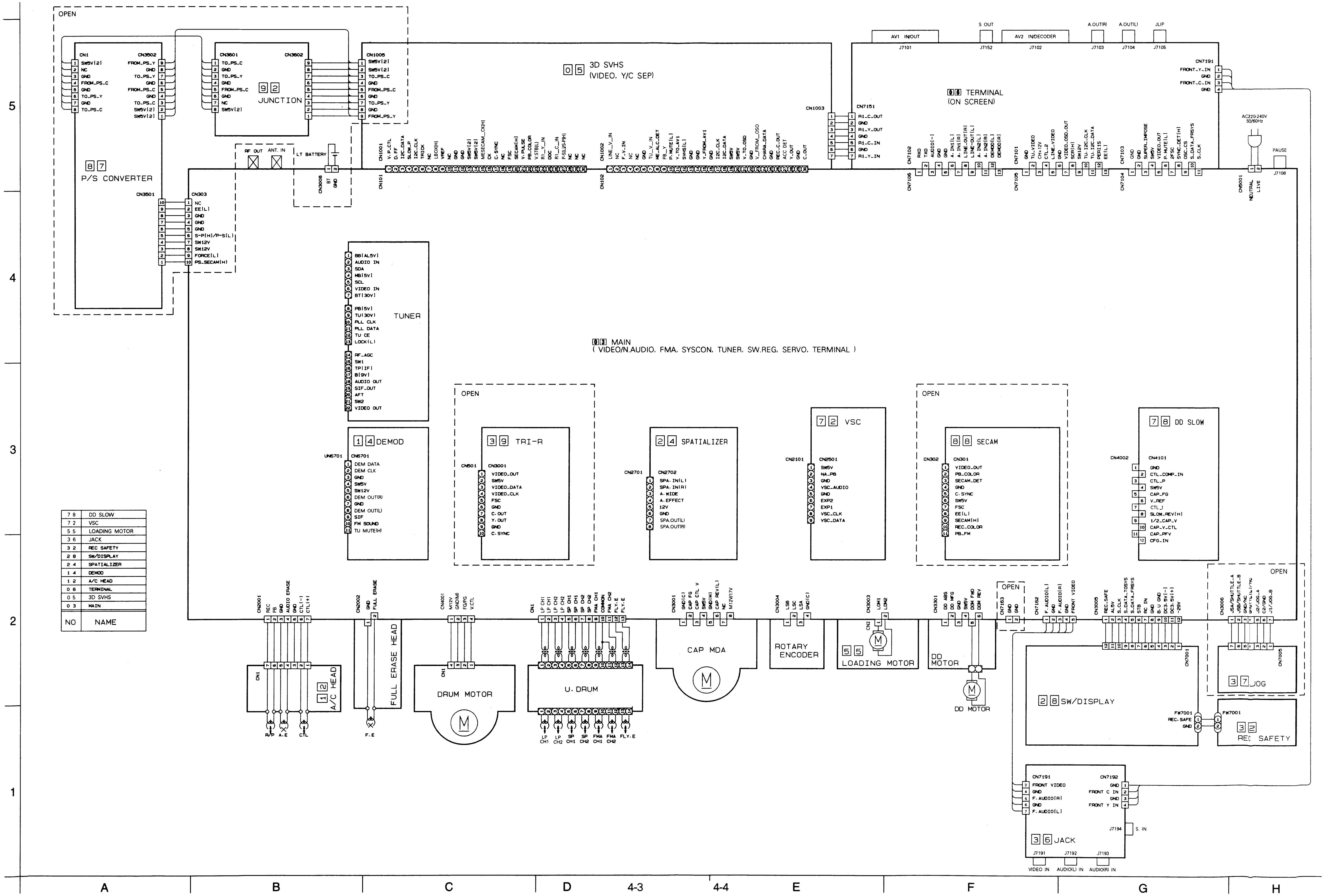
Parts location are indicated by guide scale on the circuit board.


REF No.
LOCATION
IC
Category : IC
IC101
B
C
6 A
B : Foil side
(A : Component side)
C : Chip component
D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

Note:

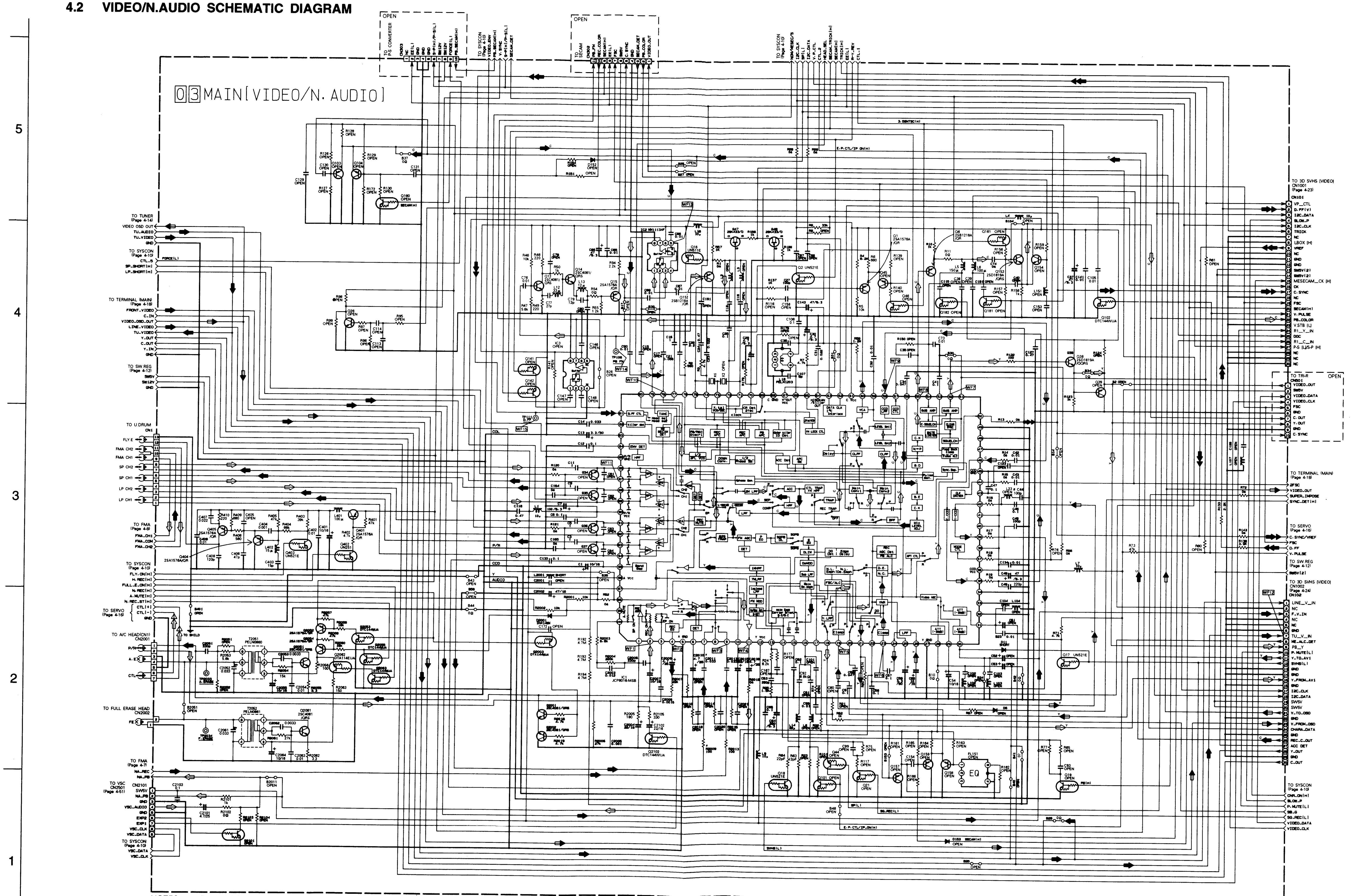
For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS


OPEN
8 7 P/S CONVERTER
CN1
SW5V(2)
NC
GND
FROM_PS_C
GND
TO_PS_Y
GND
TO_PS_C
CN3502
FROM_PS_Y
GND
TO_PS_Y
GND
FROM_PS_C
GND
TO_PS_C
SW5V(2)
SW5V(2)
CN3501
9 2 JUNCTION
CN3601
TO_PS_C
GND
TO_PS_Y
GND
FROM_PS_C
GND
NC
SW5V(2)
CN3602
CN1005
SW5V(2)
SW5V(2)
TO_PS_C
GND
FROM_PS_C
GND
TO_PS_Y
GND
FROM_PS_Y
0 5 3D SVHS (VIDEO, Y/C SEP)
CN1003
CN7151
R1_C_OUT
GND
R1_Y_OUT
GND
R1_C_IN
GND
R1_Y_IN
AV1 IN/OUT
J7101
S OUT
J7152
AV2 IN/DECODER
J7102
A.OUT(R)
J7103
A.OUT(L)
J7104
JLIP
J7105
0 6 TERMINAL (ON SCREEN)
CN7191
FRONT_Y_IN
GND
FRONT_C_IN
GND
AC220-240V 50/60Hz
CN5001
NEUTRAL
LIVE
PAUSE
J7108
RF OUT
ANT. IN
LT BATTERY
CN3008
BT
GND
CN303
NC
EE(L)
GND
GND
GND
S-P(H)/P-S(L)
SW12V
SW12V
FORCE(L)
PS_SECAM(H)
CN101
CN1001
CN102
CN1002
CN7102
CN7106
CN7101
CN7105
CN7103
CN7104
TUNER
BB(AL5V)
AUDIO IN
SDA
MB(5V)
SCL
VIDEO IN
BT(30V)
PB(5V)
TU(30V)
PLL CLK
PLL DATA
TU CE
LOCK(L)
RF_AGC
SW1
TP(IF)
B(9V)
AUDIO OUT
SIF_OUT
AFT
SW2
VIDEO OUT
0 3 MAIN (VIDEO/N.AUDIO, FMA, SYSCON, TUNER, SW.REG, SERVO, TERMINAL)
1 4 DEMOD
UN5701
CN5701
DEM DATA
DEM CLK
GND
SW5V
SW12V
DEM OUT(R)
GND
DEM OUT(L)
SIF
FM SOUND
TU MUTE(H)
OPEN
3 9 TRI-R
CN501
CN3001
VIDEO_OUT
SW5V
VIDEO_DATA
VIDEO_CLK
FSC
GND
C. OUT
Y. OUT
GND
C. SYNC
2 4 SPATIALIZER
CN2701
CN2702
SPA. IN(L)
SPA. IN(R)
A. WIDE
A. EFFECT
12V
GND
SPA.OUT(L)
SPA.OUT(R)
7 2 VSC
CN2101
CN2501
SW5V
NA_PB
GND
VSC_AUDIO
GND
EXP2
EXP1
VSC_CLK
VSC_DATA
OPEN
8 8 SECAM
CN302
CN301
VIDEO_OUT
PB_COLOR
SECAM_DET
GND
C. SYNC
SW5V
FSC
EE(L)
SECAM(H)
REC_COLOR
PB_FM
7 8 DD SLOW
CN4002
CN4101
GND
CTL_COMP_IN
CTL_P
SW5V
CAP_FG
V_REF
CTL_I
SLOW_REV(H)
1/2_CAP_V
CAP_V_CTL
CAP_PFV
CFG_IN
CN2001
CN1
1 2 A/C HEAD
R/P
A. E
CTL
CN2002
FULL ERASE HEAD
F. E
CN4001
DRUM MOTOR
U. DRUM
LP CH1
LP CH2
SP CH1
SP CH2
FMA CH1
FMA CH2
FLY. E
CN3001
CAP MDA
CN3004
ROTARY ENCODER
CN3003
CN2
5 5 LOADING MOTOR
CN3301
DD MOTOR
OPEN
CN7163
CN7162
CN3005
CN7001
2 8 SW/DISPLAY
FW7001
REC. SAFE
GND
3 2 REC SAFETY
OPEN
CN3006
CN7005
3 7 JOG
CN7191
FRONT VIDEO
GND
F. AUDIO(R)
GND
F. AUDIO(L)
CN7192
GND
FRONT C IN
GND
FRONT Y IN
J7194
S. IN
3 6 JACK
J7191
J7192
J7193
VIDEO IN
AUDIO(L) IN
AUDIO(R) IN
5
4
3
2
1
A
B
C
D
E
F
G
H

NO	NAME
7 8	DD SLOW
7 2	VSC
5 5	LOADING MOTOR
3 6	JACK
3 2	REC SAFETY
2 8	SW/DISPLAY
2 4	SPATIALIZER
1 4	DEMOD
1 2	A/C HEAD
0 6	TERMINAL
0 5	3D SVHS
0 3	MAIN

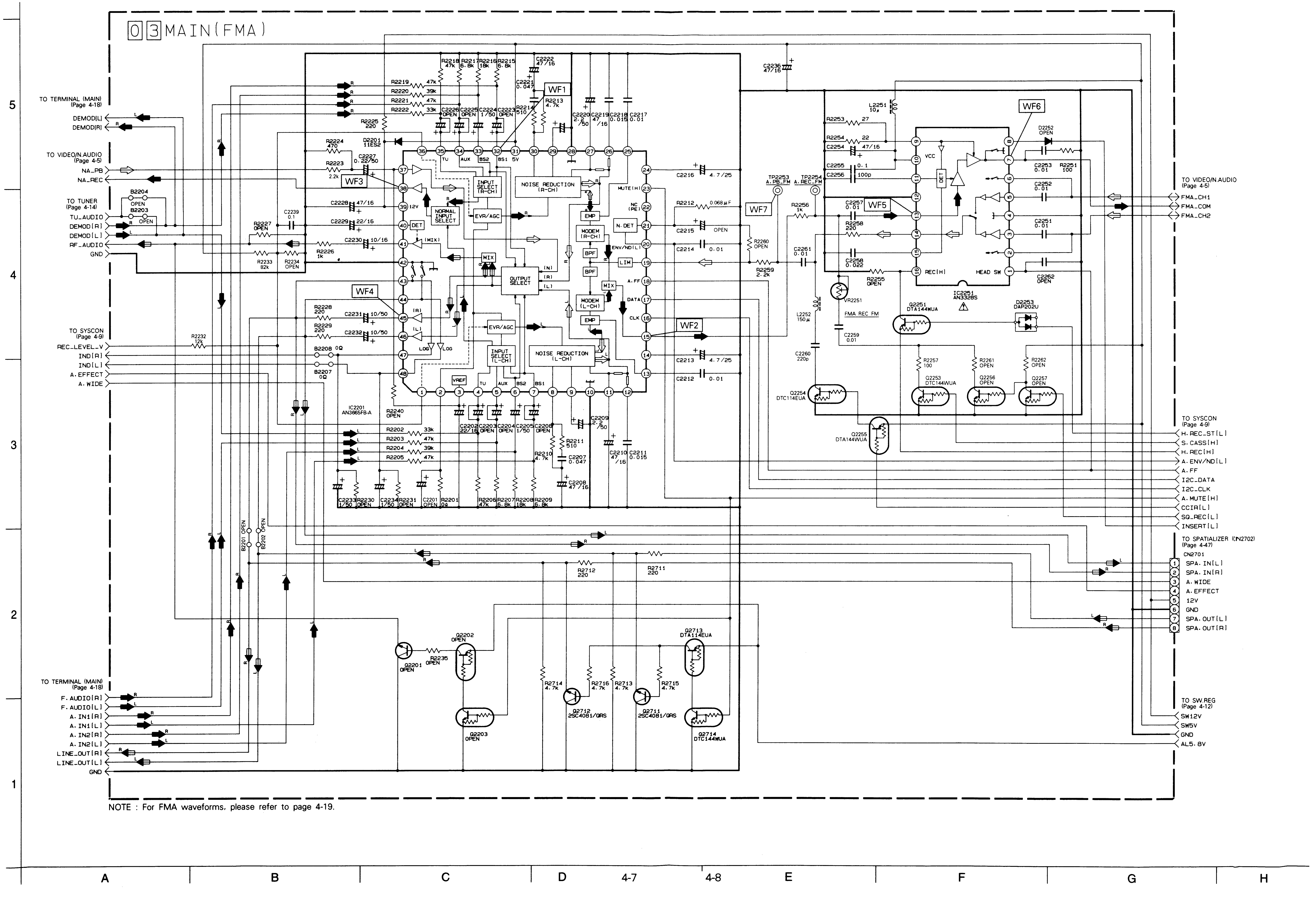
4.2 VIDEO/N.AUDIO SCHEMATIC DIAGRAM


03 MAIN[VIDEO/N.AUDIO]
TO P/S CONVERTER
OPEN
TO SYSCON (Page 4-10)
TO SECAM
TO TUNER (Page 4-14)
VIDEO OSD OUT
TU_AUDIO
TU_VIDEO
GND
TO SYSCON (Page 4-10)
CTL_5
FORCE(L)
SP_SHORT(H)
LP_SHORT(H)
TO TERMINAL (MAIN) (Page 4-18)
FRONT_VIDEO
C_IN
VIDEO_OSD_OUT
LINE_VIDEO
TU_VIDEO
Y_OUT
C_OUT
Y_IN
GND
TO SW.REG (Page 4-12)
SW5V
SW12V
GND
TO U.DRUM
CN1
FLY.E
FMA CH2
FMA CH1
SP CH2
SP CH1
LP CH2
LP CH1
TO FMA (Page 4-8)
FMA_CH1
FMA_COM
FMA_CH2
TO SYSCON (Page 4-10)
FLY.ON(H)
H.REC(H)
FULL_E_ON(H)
N.REC(H)
A.MUTE(H)
N.REC_ST(H)
TO SERVO (Page 4-16)
CTL(+)
CTL(-)
GND
TO A/C HEAD(CN1) CN2001
P/R
A.E
CTL
TO FULL ERASE HEAD CN2002
FE
TO FMA (Page 4-7)
NA_REC
NA_PB
TO VSC CN2501 (Page 4-51)
CN2101
SW5V
NA_PB
GND
VSC_AUDIO
GND
EXP2
EXP1
VSC_CLK
VSC_DATA
TO SYSCON (Page 4-10)
VSC_DATA
VSC_CLK
TO 3D SVHS (VIDEO) CN1001 (Page 4-23)
CN101
VP_CTL
D.FF(V)
I2C_DATA
SLOW_P
I2C_CLK
TRICK
NC
LBOX (H)
VREF
NC
GND
GND
SW5V(2)
SW5V(2)
MESECAM_CK (H)
CK
C.SYNC
NC
FSC
SECAM(H)
V.PULSE
PB_COLOR
V.STB (L)
R1_Y_IN
DOC
R1_C_IN
P-S (L)/S-P (H)
NC
NC
NC
TO TRI-R
OPEN
CN501
VIDEO_OUT
SW5V
VIDEO_DATA
VIDEO_CLK
FSC
GND
C.OUT
Y.OUT
GND
C.SYNC
TO TERMINAL (MAIN) (Page 4-18)
2FSC
VIDEO_OUT
SUPER_IMPOSE
SYNC_DET(H)
TO SERVO (Page 4-16)
C.SYNC/VREF
FSC
D.FF
V.PULSE
TO SW.REG (Page 4-12)
SW5V(2)
TO 3D SVHS (VIDEO) CN1002 (Page 4-24)
CN102
WF12
LINE_V_IN
NC
F_V_IN
NC
NC
GND
TU_V_IN
ME_ALC_DET
PB_Y
P.MUTE(L)
Y_TO_AV1
SVHS(L)
GND
GND
Y_FROM_AV1
GND
I2C_CLK
I2C_DATA
SW5V
SW5V
V_TO_OSD
GND
V_FROM_OSD
CHARA_DATA
GND
REC_C_OUT
ACC DET
Y_OUT
GND
C_OUT
TO SYSCON (Page 4-10)
CNR_ON(H)
SLOW_P
P.MUTE(L)
SB_G
SQ_REC(L)
VIDEO_DATA
VIDEO_CLK
EQ
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTES : 1. For VIDEO/N.AUDIO waveforms, please refer to page 4-19.
2. COMPARISON CHART OF MODELS & MARKS (#).

	REF.NO.	R2009	C2011	C44
MODEL	HR-S9500E	NOT USED	NOT USED	USED
	HR-S9500EH	USED	USED	NOT USED

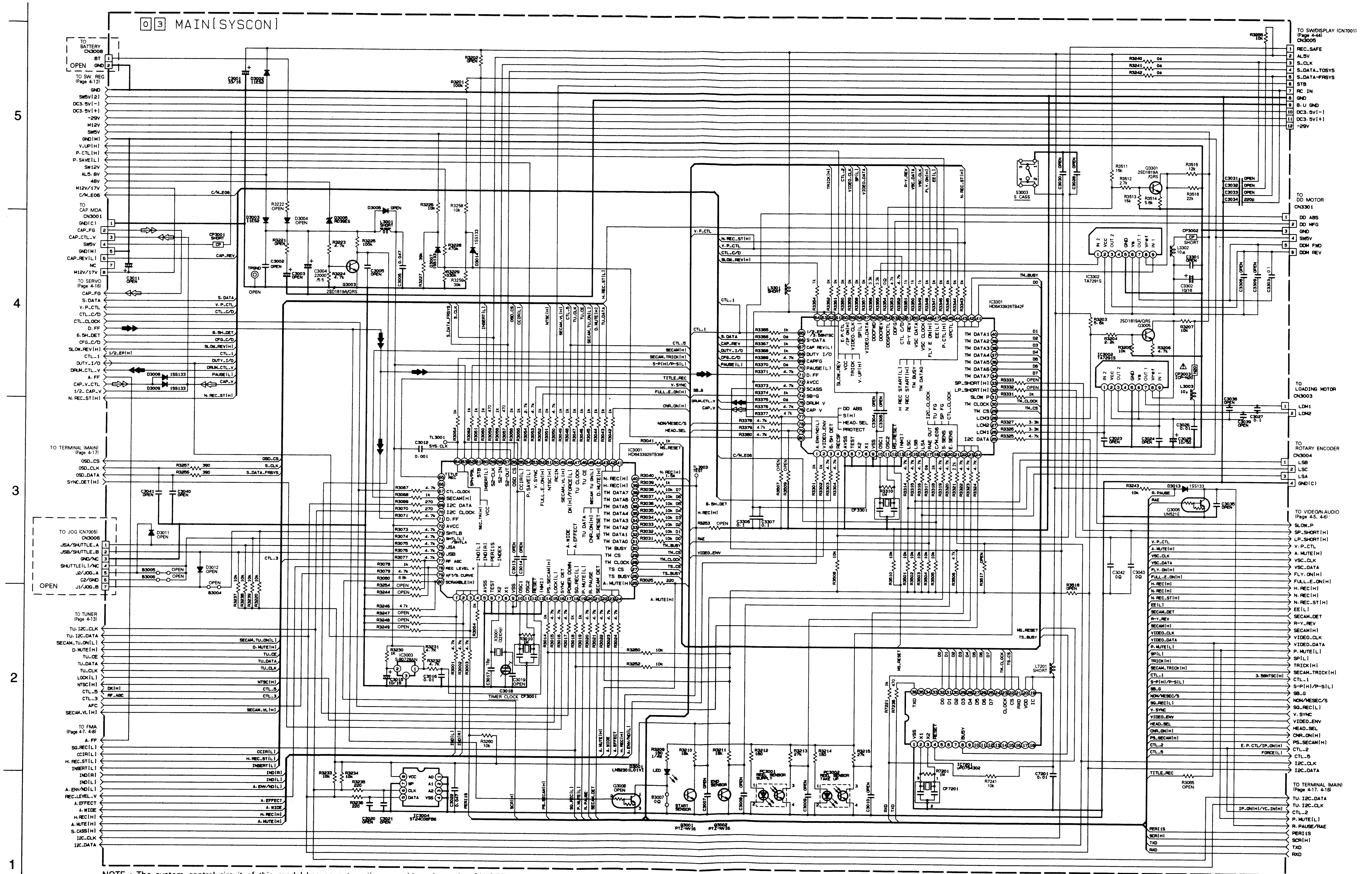
4.3 FMA SCHEMATIC DIAGRAM



03 MAIN(FMA)
TO TERMINAL (MAIN) (Page 4-18)
DEMOD[L]
DEMOD[R]
TO VIDEO/N.AUDIO (Page 4-5)
NA_PB
NA_REC
TO TUNER (Page 4-14)
TU_AUDIO
DEMOD[R]
DEMOD[L]
RF_AUDIO
GND
B2204 OPEN
B2203 OPEN
TO SYSCON (Page 4-9)
REC_LEVEL_V
IND[R]
IND[L]
A. EFFECT
A. WIDE
R2232 12k
WF1
WF2
WF3
WF4
WF5
WF6
WF7
IC2201 AN3665FB-A
INPUT SELECT (R-CH)
INPUT SELECT (L-CH)
NORMAL INPUT SELECT
EVR/AGC
OUTPUT SELECT
NOISE REDUCTION (R-CH)
NOISE REDUCTION (L-CH)
MIX
DET
EMP
MODEM (R-CH)
MODEM (L-CH)
BPF
LIM
N. DET
VREF
LOG
MUTE(H)
NC (PE)
ENV/ND(L)
A. FF
DATA
CLK
TU
AUX
BS2
BS1
5V
12V
D2201 11ES2
R2218 47k
R2217 6.8k
R2216 18k
R2215 6.8k
C2222 47/16
C2221 0.047
R2214 510
R2213 4.7k
C2220 2.2/50
C2219 47/16
C2218 0.015
C2217 0.01
C2216 4.7/25
R2212 0.068μF
C2215 OPEN
C2214 0.01
C2213 4.7/25
C2212 0.01
R2219 47k
R2220 39k
R2221 47k
R2222 33k
R2225 220
R2224 470
R2223 2.2k
C2227 0.22/50
C2226 OPEN
C2225 OPEN
C2224 1/50
C2223 OPEN
C2228 47/16
C2229 22/16
C2230 10/16
C2239 0.1
R2227 OPEN
R2226 1k
R2233 82k
R2234 OPEN
R2228 220
R2229 220
C2231 10/50
C2232 10/50
B2208 0Ω
B2207 0Ω
R2240 OPEN
R2202 33k
R2203 47k
R2204 39k
R2205 47k
C2202 22/16
C2203 OPEN
C2204 OPEN
C2205 1/50
C2206 OPEN
R2211 510
R2210 4.7k
C2207 0.047
C2209 2.2/50
C2210 47/16
C2211 0.015
C2208 47/16
C2233 1/50
R2230 OPEN
C2234 1/50
R2231 OPEN
C2201 OPEN
R2201 0Ω
R2206 47k
R2207 6.8k
R2208 18k
R2209 6.8k
B2201 OPEN
B2202 OPEN
R2712 220
R2711 220
Q2201 OPEN
R2235 OPEN
Q2202 OPEN
Q2203 OPEN
R2714 4.7k
R2716 4.7k
R2713 4.7k
R2715 4.7k
Q2712 2SC4081/QRS
Q2711 2SC4081/QRS
Q2713 DTA114EUA
Q2714 DTC144WUA
TO TERMINAL (MAIN) (Page 4-18)
F. AUDIO[R]
F. AUDIO[L]
A. IN1[R]
A. IN1[L]
A. IN2[R]
A. IN2[L]
LINE_OUT[R]
LINE_OUT[L]
GND
C2236 47/16
L2251 10μ
R2253 27
R2254 22
C2254 47/16
C2255 0.1
C2256 100p
TP2253 A. PB_FM
TP2254 A. REC_FM
R2256 1k
C2257 0.01
R2258 220
C2258 0.022
R2260 OPEN
R2259 2.2k
C2261 0.01
R2255 OPEN
VR2251
FMA REC FM
L2252 150μ
C2259 0.01
C2260 220p
VCC
DET
REC(H)
HEAD SW
IC2251 AN3328S
D2252 OPEN
C2253 0.01
R2251 100
C2252 0.01
C2251 0.01
C2262 OPEN
Q2251 DTA144WUA
D2253 DAP202U
R2257 100
R2261 OPEN
R2262 OPEN
Q2253 DTC144WUA
Q2256 OPEN
Q2257 OPEN
Q2254 DTC114EUA
Q2255 DTA144WUA
TO VIDEO/N.AUDIO (Page 4-5)
FMA_CH1
FMA_COM
FMA_CH2
TO SYSCON (Page 4-9)
H. REC_ST[L]
S. CASS[H]
H. REC[H]
A. ENV/ND[L]
A. FF
I2C_DATA
I2C_CLK
A. MUTE[H]
CCIR[L]
SQ_REC[L]
INSERT[L]
TO SPATIALIZER (CN2702) (Page 4-47)
CN2701
1 SPA. IN[L]
2 SPA. IN[R]
3 A. WIDE
4 A. EFFECT
5 12V
6 GND
7 SPA. OUT[L]
8 SPA. OUT[R]
TO SW.REG (Page 4-12)
SW12V
SW5V
GND
AL5. 8V
1
2
3
4
5
A
B
C
D
E
F
G
H

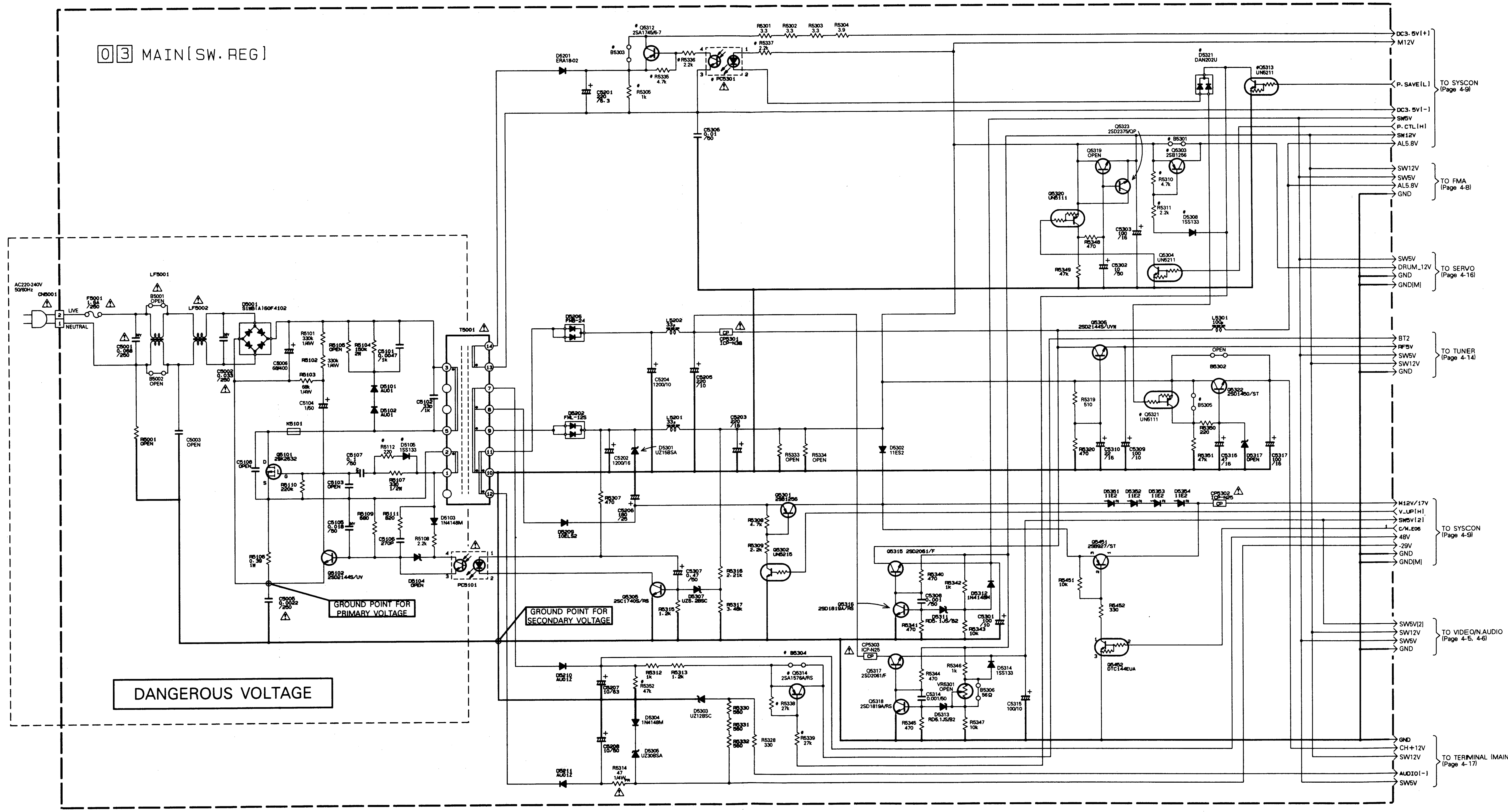
NOTE : For FMA waveforms, please refer to page 4-19.

4.4 SYSTEM CONTROL SCHEMATIC DIAGRAM


03 MAIN[SYSCON]
TO BATTERY CN3008
BT
GND
OPEN
TO SW. REG (Page 4-12)
GND
SW5V[2]
DC3.5V[-]
DC3.5V[+]
-29V
M12V
SW5V
GND[M]
V.UP[H]
P.CTL[H]
P.SAVE[L]
SW12V
AL5.8V
48V
M12V/17V
C/M.E06
TO CAP MDA CN3001
TO SERVO (Page 4-16)
TO TERMINAL (MAIN) (Page 4-17)
OSD.CS
OSD.CLK
OSD.DATA
SYNC.DET[H]
TO JOG (CN7005) CN3006
TO TUNER (Page 4-13)
TO FMA (Page 4-7, 4-8)
IC3001 HD6433929TB39F
IC3301 HD6433926TB42F
IC3003 S-80728AN
IC3004 ST24C08FB6
IC7201 UPD754302
IC3302 TA7291S
IC3002 TA7291S
Q3003 2SD1819A/QRS
Q3005 2SD1819A/QRS
Q3301 2SD1819A/QRS
Q3006 UN521E
D3001 LN8230(LD1V)
Q3001 PTZ-NV16
Q3002 PTZ-NV16
PC3001 REEL SENSOR SUPPLY
PC3002 REEL SENSOR TAKE UP
CF3001
CF3301
CF7201
S3003 S CASS
TIMER CLOCK CF3001
TO SW/DISPLAY (CN7001) (Page 4-44) CN3005
REC.SAFE
AL5V
S.CLK
S.DATA.TOSYS
S.DATA.FRSYS
STB
RC IN
GND
B.U GND
DC3.5V[-]
DC3.5V[+]
-29V
TO DD MOTOR CN3301
DD ABS
DD MFG
GND
SW5V
DDM FWD
DDM REV
TO LOADING MOTOR CN3003
LDM1
LDM2
TO ROTARY ENCODER CN3004
LSB
LSC
LSA
GND(C)
TO VIDEO/N.AUDIO (Page 4-5, 4-6)
TO TERMINAL (MAIN) (Page 4-17, 4-18)
TU.I2C.DATA
TU.I2C.CLK
CTL.2
P.MUTE[L]
R.PAUSE/RAE
PERIIS
SCR[H]
TXD
RXD
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTE : The system control circuit of this model has an automatic recognition about the ON-OFF control of the DOCTOR SYSTEM.

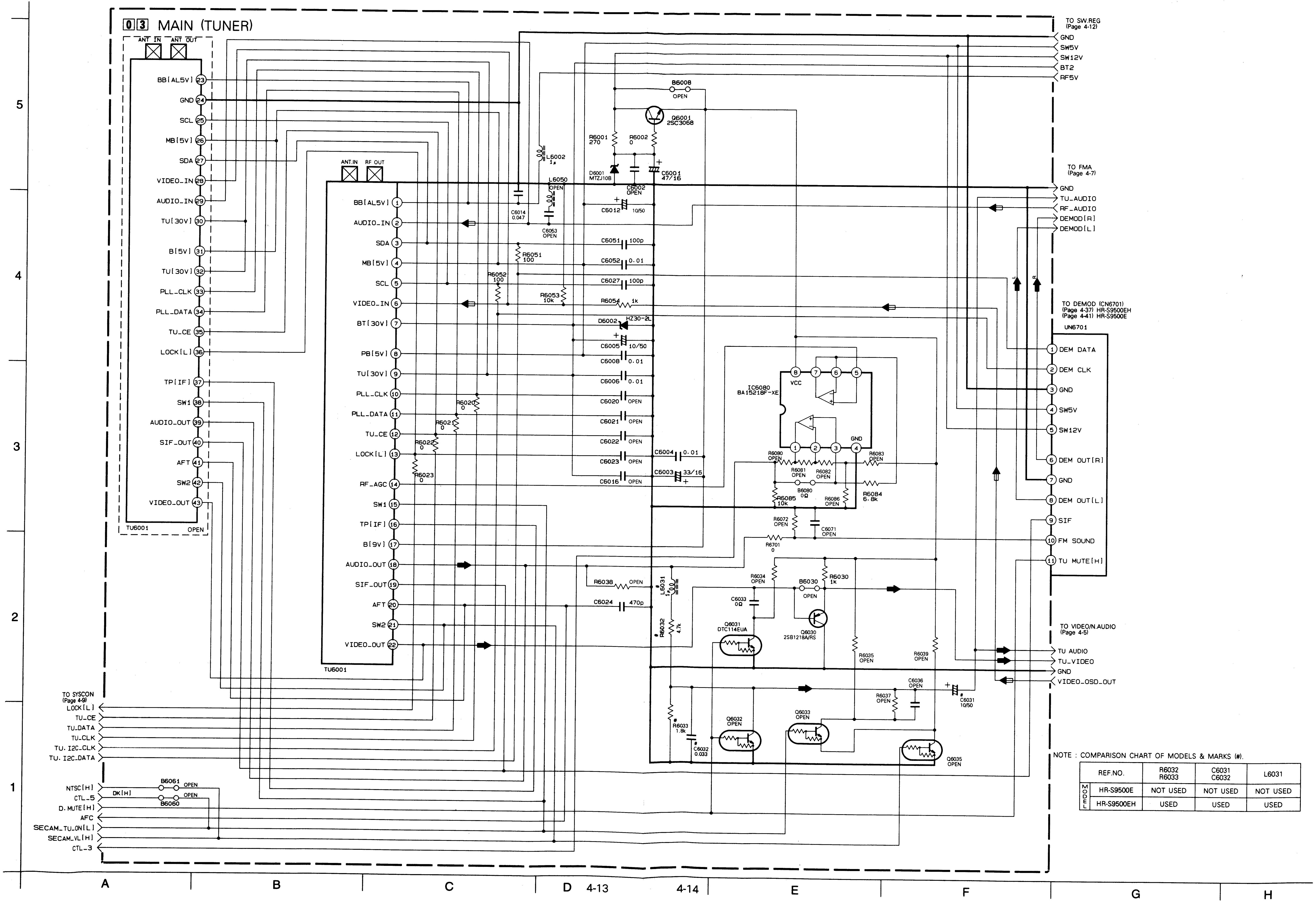
4.5 SWITCHING REGULATOR SCHEMATIC DIAGRAM


03 MAIN[SW. REG]
AC220-240V 50/60Hz
CN5001
LIVE
NEUTRAL
F5001
LF5001
LF5002
B5001 OPEN
B5002 OPEN
C5001
C5002
R5001 OPEN
C5003 OPEN
D5001
R5101
R5102
R5103
R5104
R5105 OPEN
C5101
C5104
C5106 OPEN
Q5101 2SK2632
Q5102 2SD2144S/UV
R5110 220k
C5103 OPEN
C5107
R5107
R5112
D5105 1SS133
D5101 AU01
D5102 AU01
D5103 1N4148M
D5104 OPEN
C5105
C5108
R5106
R5108
R5109
R5111
K5101
C5005
T5001
PC5101
GROUND POINT FOR PRIMARY VOLTAGE
GROUND POINT FOR SECONDARY VOLTAGE
DANGEROUS VOLTAGE
D5201 ERA18-02
C5201
D5206 FML-24
D5202 FML-12S
D5209 10ELS2
D5210 AU01Z
D5211 AU01Z
L5201
L5202
C5202 1200/16
C5204 1200/10
C5205
C5203
C5206
C5207
C5208
D5301 UZ15BSA
D5302 11ES2
D5303 UZ12BSC
D5304 1N4148M
D5305 UZ30BSA
D5306 1SS133
D5307 UZ6.2BSC
D5308 1SS133
D5311 RD5.1JS/B2
D5312 1N4148M
D5313 RD6.1JS/B2
D5314 1SS133
D5321 DAN202U
D5351 11E2
D5352 11E2
D5353 11E2
D5354 11E2
Q5301 2SB1256
Q5302 UN5215
Q5303 2SB1256
Q5304 UN5211
Q5305 2SD2144S/UVW
Q5306 2SC1740S/RS
Q5312 2SA1745/6-7
Q5313 UN5211
Q5314 2SA1576A/RS
Q5315 2SD2061/F
Q5316 2SD1819A/RS
Q5317 2SD2061/F
Q5318 2SD1819A/RS
Q5319 OPEN
Q5320 UN5111
Q5321 UN5111
Q5322 2SD1450/ST
Q5323 2SD2375/QP
Q5451 2SB927/ST
Q5452 DTC144EUA
PC5301
CP5301 ICP-N38
CP5302 ICP-N25
CP5303 ICP-N25
L5301
B5301
B5302
B5303
B5304
B5305
VR5301 OPEN
R5301 3.3
R5302 3.3
R5303 3.3
R5304 3.9
R5305 1k
R5333 OPEN
R5334 OPEN
R5335 2.2k
R5336 4.7k
R5337 2.2k
DC3.5V[+]
M12V
P.SAVE[L]
DC3.5V[-]
SW5V
P.CTL[H]
SW12V
AL5.8V
TO SYSCON (Page 4-9)
SW12V
SW5V
AL5.8V
GND
TO FMA (Page 4-8)
SW5V
DRUM_12V
GND
GND[M]
TO SERVO (Page 4-16)
BT2
RF5V
SW5V
SW12V
GND
TO TUNER (Page 4-14)
M12V/17V
V_UP[H]
SW5V[2]
C/M_E06
48V
-29V
GND
GND[M]
TO SYSCON (Page 4-9)
SW5V[2]
SW12V
SW5V
GND
TO VIDEO/N.AUDIO (Page 4-5, 4-6)
GND
CH+12V
SW12V
AUDIO[-]
SW5V
TO TERMINAL (MAIN (Page 4-17)
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : COMPARISON CHART OF MODELS & MARKS (#).

REF.NO.		Q5303, Q5312 Q5313, Q5314	Q5321	D5105, D5308 D5321	R5112, R5305 R5310, R5311	R5335-R5339 R5352	PC5301	B5301, B5303 B5304, B5305
MODEL	HR-S9500E	USED	USED	USED	USED	USED	USED	OPEN
	HR-S9500EH	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	0Ω

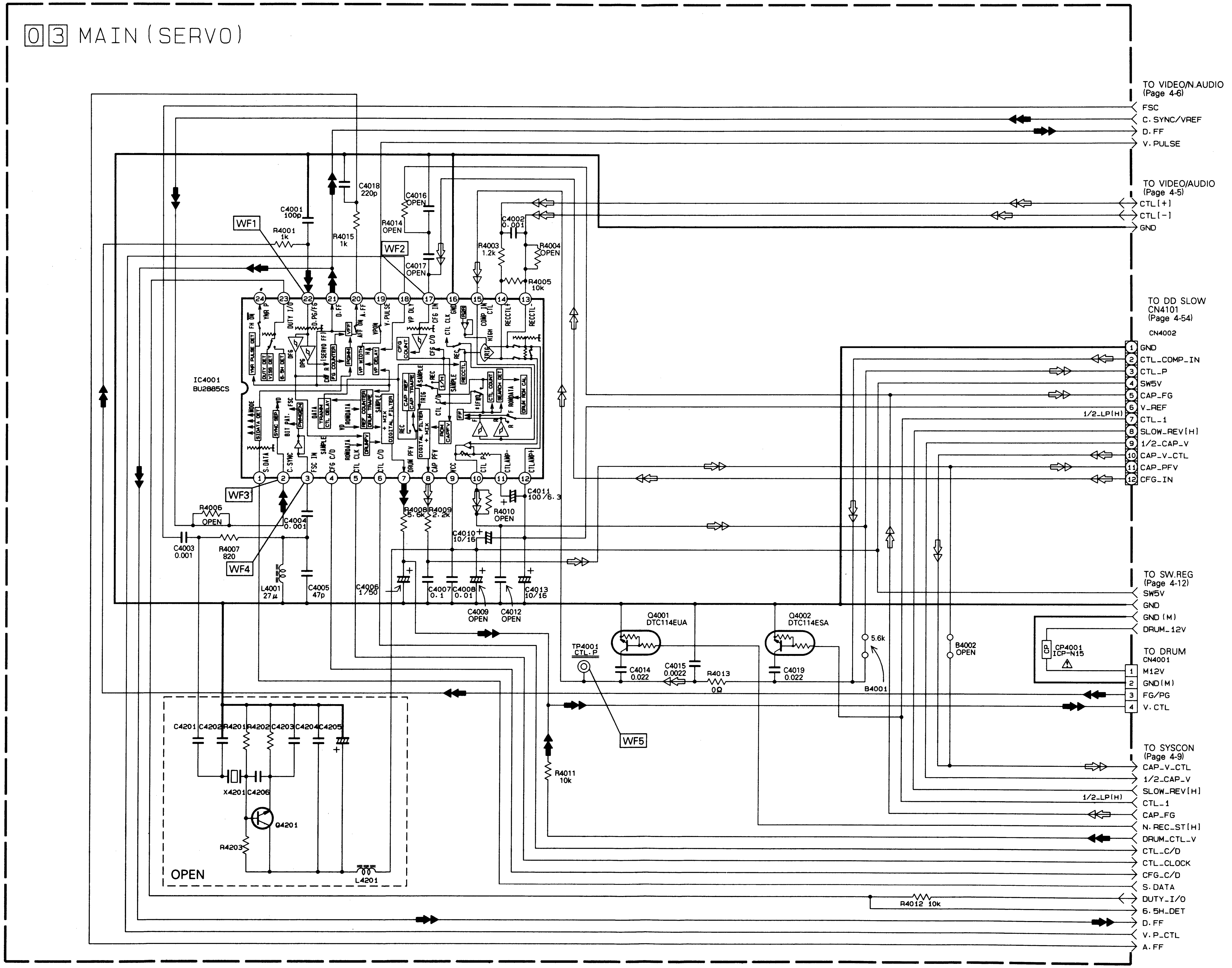
4.6 TUNER SCHEMATIC DIAGRAM


03 MAIN (TUNER)
ANT IN
ANT OUT
BB[AL5V]
GND
SCL
MB[5V]
SDA
VIDEO_IN
AUDIO_IN
TU[30V]
B[5V]
PLL_CLK
PLL_DATA
TU_CE
LOCK[L]
TP[IF]
SW1
AUDIO_OUT
SIF_OUT
AFT
SW2
VIDEO_OUT
TU6001
OPEN
ANT.IN
RF OUT
BT[30V]
PB[5V]
RF_AGC
B[9V]
TO SW.REG (Page 4-12)
SW5V
SW12V
BT2
RF5V
B6008
Q6001 2SC3068
R6001 270
R6002 0
L6002
D6001 MTZJ10B
C6002 OPEN
C6001 47/16
L6050 OPEN
C6014 0.047
C6053 OPEN
C6012 10/50
R6051 100
R6052 100
R6053 10k
C6051 100p
C6052 0.01
C6027 100p
R6054 1k
D6002 HZ30-2L
C6005 10/50
C6008 0.01
C6006 0.01
C6020 OPEN
C6021 OPEN
C6022 OPEN
C6023 OPEN
C6016 OPEN
R6020 0
R6021 0
R6022 0
R6023 0
C6004 0.01
C6003 33/16
TO FMA (Page 4-7)
TU_AUDIO
RF_AUDIO
DEMOD[R]
DEMOD[L]
TO DEMOD (CN6701) (Page 4-37) HR-S9500EH (Page 4-41) HR-S9500E
UN6701
DEM DATA
DEM CLK
DEM OUT[R]
DEM OUT[L]
SIF
FM SOUND
TU MUTE[H]
IC6080 BA15218F-XE
VCC
R6080 OPEN
R6081 OPEN
R6082 OPEN
R6083 OPEN
B6080 0Ω
R6084 6.8k
R6085 10k
R6086 OPEN
R6072 OPEN
C6071 OPEN
R6701 0
R6038 OPEN
L6031
C6024 470p
R6032 4.7k
R6034 OPEN
B5030 OPEN
R6030 1k
C6033 0Ω
Q6031 DTC114EUA
Q6030 2SB1218A/RS
R6035 OPEN
R6039 OPEN
TO VIDEO/N.AUDIO (Page 4-5)
TU AUDIO
TU_VIDEO
VIDEO_OSD_OUT
R6037 OPEN
C6036 OPEN
C6031 10/50
R6033 1.8k
C6032 0.033
Q6032 OPEN
Q6033 OPEN
Q6035 OPEN
TO SYSCON (Page 4-9)
TU_CE
TU_DATA
TU_CLK
TU. I2C_CLK
TU. I2C_DATA
NTSC[H]
CTL_5
D. MUTE[H]
AFC
SECAM_TU_ON[L]
SECAM_VL[H]
CTL_3
DK[H]
B6061 OPEN
B6060 OPEN
A
B
C
D
E
F
G
H
1
2
3
4
5

NOTE : COMPARISON CHART OF MODELS & MARKS (#).

REF.NO.		R6032 R6033	C6031 C6032	L6031
MODEL	HR-S9500E	NOT USED	NOT USED	NOT USED
	HR-S9500EH	USED	USED	USED

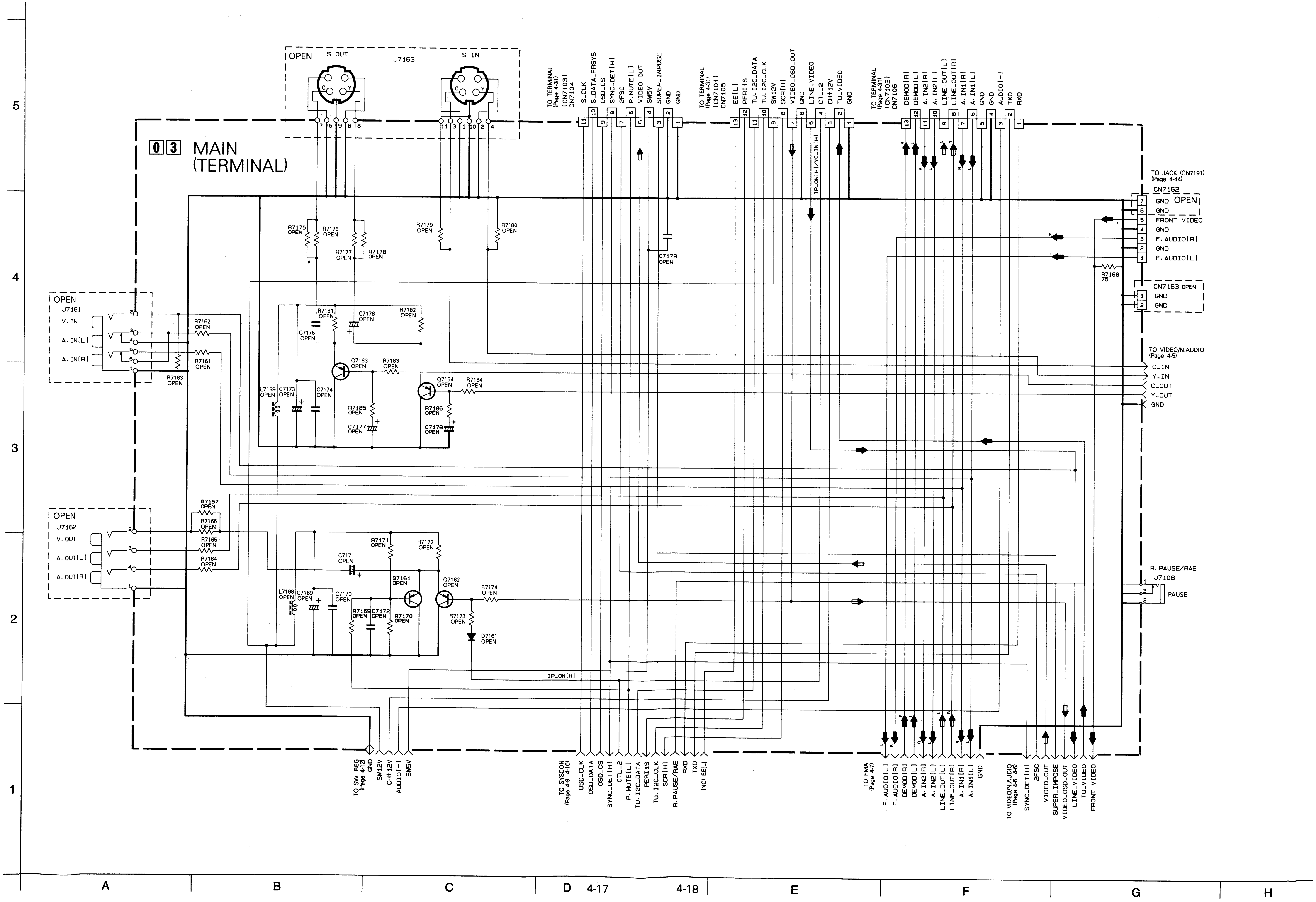
4.7 SERVO SCHEMATIC DIAGRAM



03 MAIN (SERVO)
TO VIDEO/N.AUDIO (Page 4-6)
FSC
C.SYNC/VREF
D.FF
V.PULSE
TO VIDEO/AUDIO (Page 4-5)
CTL(+)
CTL(-)
GND
TO DD SLOW CN4101 (Page 4-54)
CN4002
1 GND
2 CTL_COMP_IN
3 CTL_P
4 SW5V
5 CAP_FG
6 V_REF
7 CTL_1
8 SLOW_REV(H)
9 1/2_CAP_V
10 CAP_V_CTL
11 CAP_PFV
12 CFG_IN
1/2_LP(H)
TO SW.REG (Page 4-12)
SW5V
GND
GND(M)
DRUM_12V
CP CP4001 ICP-N15
TO DRUM CN4001
1 M12V
2 GND(M)
3 FG/PG
4 V.CTL
TO SYSCON (Page 4-9)
CAP_V_CTL
1/2_CAP_V
SLOW_REV(H)
1/2_LP(H)
CTL_1
CAP_FG
N.REC_ST(H)
DRUM_CTL_V
CTL_C/D
CTL_CLOCK
CFG_C/D
S.DATA
DUTY_I/O
6.5H_DET
D.FF
V.P_CTL
A.FF
IC4001 BU2885CS
WF1
WF2
WF3
WF4
WF5
C4001 100p
R4001 1k
C4018 220p
R4015 1k
C4016 OPEN
R4014 OPEN
C4017 OPEN
C4002 0.001
R4003 1.2k
R4004 OPEN
R4005 10k
R4006 OPEN
C4003 0.001
R4007 820
C4004 0.001
L4001 27µ
C4005 47p
C4006 1/50
R4008 5.6k
R4009 2.2k
C4007 0.1
C4008 0.01
C4009 OPEN
C4010 10/16
C4012 OPEN
C4013 10/16
R4010 OPEN
C4011 100/6.3
Q4001 DTC114EUA
Q4002 DTC114ESA
C4014 0.022
C4015 0.0022
R4013 0Ω
C4019 0.022
TP4001 CTL.P
5.6k
B4001
B4002 OPEN
R4011 10k
R4012 10k
C4201 C4202 R4201 R4202 C4203 C4204 C4205
X4201 C4206
Q4201
R4203
L4201
OPEN
S.DATA
C.SYNC
FSC IN
CFG C/D
CTL CLK
CTL C/D
DRUM PFV
CAP PFV
VCC
CTL P
CTLAMP-
CTLAMP+
YMR P
DUTY I/O
D.PG/FG
D.FF
AFF ON A.FF
V.PULSE
VP DLY
CFG IN
CTL CLK
GND
COMP IN CTL
RECCTL+
RECCTL-

NOTE : For SERVO waveforms, please refer to page 4-19.

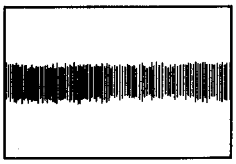
4.8 TERMINAL (MAIN) SCHEMATIC DIAGRAM


03 MAIN (TERMINAL)
OPEN
S OUT
J7163
S IN
TO TERMINAL (Page 4-31) (CN7103) CN7104
S.CLK
S.DATA_FRSYS
OSD_CS
SYNC_DET[H]
2FSC
P.MUTE[L]
VIDEO_OUT
SW5V
SUPER_IMPOSE
GND
GND
TO TERMINAL (Page 4-31) (CN7101) CN7105
EE[L]
PERI1S
TU.I2C_DATA
TU.I2C_CLK
SW12V
SCR[H]
VIDEO_OSD_OUT
GND
LINE_VIDEO
CTL_2
CH+12V
TU_VIDEO
GND
TO TERMINAL (Page 4-31) (CN7102) CN7106
DEMOD[R]
DEMOD[L]
A.IN2[R]
A.IN2[L]
LINE_OUT[L]
LINE_OUT[R]
A.IN1[R]
A.IN1[L]
GND
GND
AUDIO[-]
TXD
RXD
IP_ON[H]/YC_IN[H]
TO JACK (CN7191) (Page 4-44)
CN7162
GND OPEN
GND
FRONT VIDEO
GND
F.AUDIO[R]
GND
F.AUDIO[L]
R7168 75
CN7163 OPEN
GND
GND
TO VIDEO/N.AUDIO (Page 4-5)
C_IN
Y_IN
C_OUT
Y_OUT
GND
R7175 OPEN
R7176 OPEN
R7177 OPEN
R7178 OPEN
R7179 OPEN
R7180 OPEN
C7179 OPEN
OPEN
J7161
V. IN
A. IN[L]
A. IN[R]
R7162 OPEN
R7161 OPEN
R7163 OPEN
R7181 OPEN
C7176 OPEN
R7182 OPEN
C7175 OPEN
Q7163 OPEN
R7183 OPEN
Q7164 OPEN
R7184 OPEN
L7169 OPEN
C7173 OPEN
C7174 OPEN
R7185 OPEN
C7177 OPEN
R7186 OPEN
C7178 OPEN
OPEN
J7162
V. OUT
A. OUT[L]
A. OUT[R]
R7167 OPEN
R7166 OPEN
R7165 OPEN
R7164 OPEN
R7171 OPEN
R7172 OPEN
C7171 OPEN
Q7161 OPEN
Q7162 OPEN
R7174 OPEN
L7168 OPEN
C7169 OPEN
C7170 OPEN
R7169 OPEN
C7172 OPEN
R7170 OPEN
R7173 OPEN
D7161 OPEN
IP_ON[H]
R. PAUSE/RAE
J7108
PAUSE
TO SW. REG (Page 4-12)
GND
SW12V
CH+12V
AUDIO[-]
SW5V
TO SYSCON (Page 4-9, 4-10)
OSD_CLK
OSD_DATA
OSD_CS
SYNC_DET[H]
CTL_2
P.MUTE[L]
TU.I2C_DATA
PERI1S
TU.I2C_CLK
SCR[H]
R.PAUSE/RAE
RXD
TXD
(NC) EE[L]
TO FMA (Page 4-7)
F.AUDIO[L]
F.AUDIO[R]
DEMOD[R]
DEMOD[L]
A.IN2[R]
A.IN2[L]
LINE_OUT[L]
LINE_OUT[R]
A.IN1[R]
A.IN1[L]
GND
TO VIDEO/N.AUDIO (Page 4-5, 4-6)
SYNC_DET[H]
2FSC
VIDEO_OUT
SUPER_IMPOSE
VIDEO_OSD_OUT
LINE_VIDEO
TU_VIDEO
FRONT_VIDEO
1
2
3
4
5
A
B
C
D
E
F
G
H

WAVEFORMS

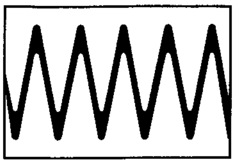
— VIDEO/N.AUDIO —

WF1 IC1-2



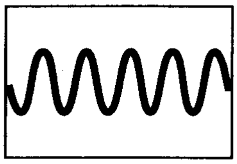
PB 2.5 mVp-p
2 mV/5 msec/DIV

WF2 IC1-4



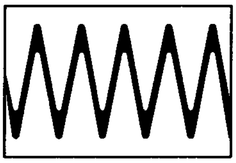
REC 0.82 Vp-p
20 mV/0.5 msec/DIV

WF3 IC1-9



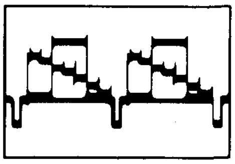
REC 0.11 Vp-p
5 mV/1 msec/DIV

WF4 IC1-11



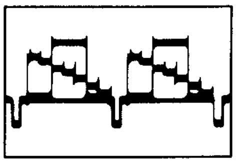
PB 0.78 Vp-p
20 mV/0.5 msec/DIV

WF5-1 IC1-19



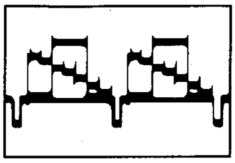
REC 0.5 Vp-p
10 mV/20 μsec/DIV

WF5-2 IC1-19



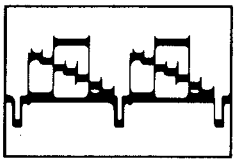
PB 0.56 Vp-p
10 mV/20 μsec/DIV

WF6-1 IC1-23



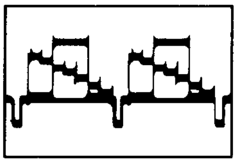
REC 0.48 Vp-p
10 mV/20 μsec/DIV

WF6-2 IC1-23



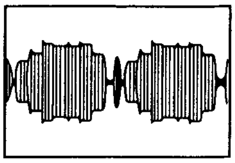
PB 0.56 Vp-p
10 mV/20 μsec/DIV

WF7 IC1-52



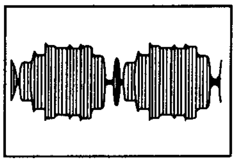
PB 2.2 Vp-p
50 mV/20 μsec/DIV

WF8 IC1-55



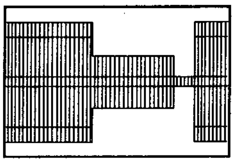
PB 0.62 Vp-p
10 mV/10 μsec/DIV

WF9-1 IC1-58



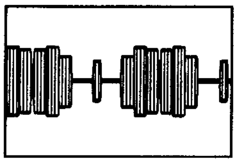
REC 0.42 Vp-p
10 mV/10 μsec/DIV

WF9-2 IC1-58



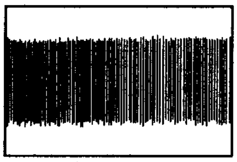
PB 0.42 Vp-p
10 mV/2 msec/DIV

WF10-1 IC1-78



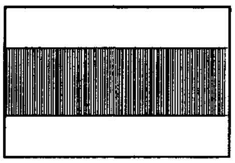
REC 0.62 Vp-p
10 mV/10 μsec/DIV

WF10-2 IC1-78



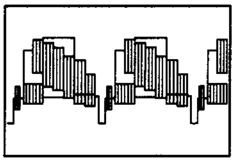
PB 0.22 Vp-p
10 mV/20 μsec/DIV

WF11 IC1-87



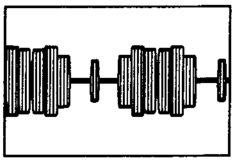
REC 2.7 Vp-p
50 mV/1 msec/DIV

WF12 CN102-7



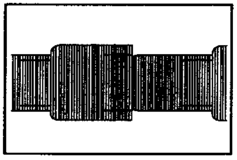
REC 1.02 Vp-p
20 mV/20 μsec/DIV

WF13 IC2-5



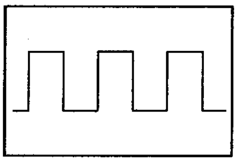
REC 0.65 Vp-p
10 mV/10 μsec/DIV

WF14 TP106
PB_FM



PB 0.25 Vp-p
5 mV/1 msec/DIV

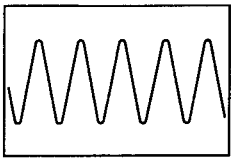
WF15 TP111
D.FF



REC/PB 5.1 Vp-p
0.1 V/10 msec/DIV

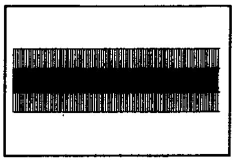
— FMA —

WF1 IC2201-32



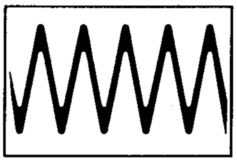
REC 0.1 Vp-p
2 mV/0.5 msec/DIV

WF2 IC2201-15



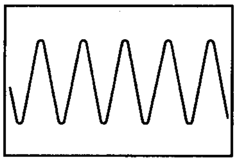
REC 0.26 Vp-p
5 mV/1 msec/DIV

WF3 IC2201-38



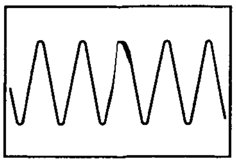
REC 0.11 Vp-p
2 mV/0.5 msec/DIV

WF4-1 IC2201-45



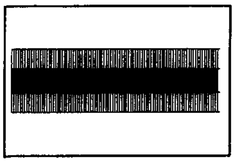
REC 1.04 Vp-p
20 mV/0.5 msec/DIV

WF4-2 IC2201-45



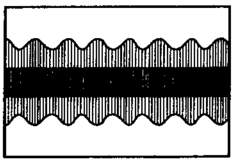
PB 1.04 Vp-p
20 mV/0.5msec/DIV

WF5 IC2251-13



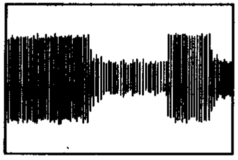
REC 0.11 Vp-p
5 mV/1 msec/DIV

WF6 IC2251-7



REC 2.1 Vp-p
50 mV/2 msec/DIV

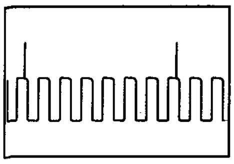
WF7 TP2253
A.PB_FM



PB 1.0 Vp-p
20 mV/5 msec/DIV

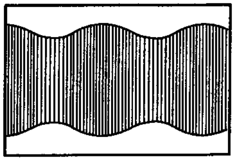
— SERVO —

WF1 IC4001-22
D.PG/FG



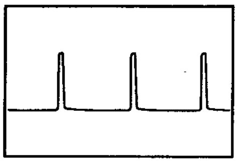
REC/PB 4.0 Vp-p
0.1 V/5 msec/DIV

WF2 IC4001-17
CAP_FG



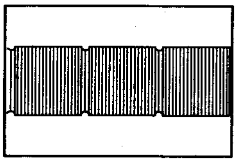
REC/PB 4.1 Vp-p
0.1 V/10 msec/DIV

WF3 IC4001-2
C.SYNC



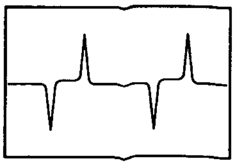
REC 5.0 Vp-p
0.2 V/20 μsec/DIV

WF4 IC4001-3
FSC



REC/PB 0.32 Vp-p
50 mV/5 msec/DIV

WF5 TP4001
CTL.P



PB 2.8 Vp-p
50 mV/10 μsec/DIV

COMPONENT PARTS LOCATION GUIDE <MAIN>

REF.NO.	LOCATION		
CAPACITOR			
C1	A	D	15J
C3	B	C	17J
C5	B	C	17J
C6	B	C	17H
C7	A	D	18H
C9	B	C	18J
C11	B	C	18J
C12	B	C	17H
C13	A	D	18H
C14	B	C	18H
C15	B	C	18H
C16	B	C	19G
C17	B	C	19F
C18	B	C	20F
C19	B	C	19F
C20	B	C	19G
C21	B	C	19H
C23	B	C	18G
C24	B	C	18G
C25	B	C	18G
C27	B	C	19D
C29	B	C	18G
C30	B	C	18F
C31	B	C	17F
C32	B	C	16E
C34	B	C	16E
C35	B	C	16F
C36	B	C	17F
C37	A	D	20C
C38	B	C	18D
C39	B	C	18C
C40	B	C	17E
C41	B	C	16F
C42	B	C	16F
C43	B	C	15F
C44	B	C	16F
C45	B	C	15E
C46	B	C	16E
C47	B	C	15F
C48	A	D	15F
C49	B	C	15F
C51	A	D	14F
C52	A	D	13G
C53	A	D	12G
C54	A	D	12G
C55	A	D	13G
C56	A	D	12G
C57	B	C	15H
C58	B	C	15H
C59	B	C	15H
C60	B	C	14I
C61	B	C	12H
C62	B	C	14I
C63	B	C	13J
C64	A	D	13I
C65	B	C	13I
C73	B	C	16E
C74	B	C	19C
C76	B	C	19F
C77	B	C	19E
C78	B	C	19F
C79	B	C	19E
C80	B	C	19E
C81	B	C	17I
C82	B	C	17I
C83	B	C	17J
C84	B	C	17J
C85	B	C	20F
C86	A	D	20F
C87	B	C	18F
C88	B	C	18F
C89	B	C	18F
C90	B	C	18H
C91	B	C	14I
C92	B	C	12H
C93	B	C	13J
C96	B	C	17F
C97	B	C	17F
C98	B	C	13I
C99	B	C	13H
C101	B	C	12H
C102	B	C	13G
C103	B	C	14G
C104	B	C	14F
C105	A	D	19C
C107	B	C	17F
C108	B	C	17F
C113	B	C	21C
C114	B	C	21C
C115	B	C	18D
C118	B	C	19I
C123	B	C	16F
C127	B	C	20D
C128	B	C	9O
C129	B	C	8N
C130	B	C	8N
C131	B	C	9M
C133	B	C	15J
C134	B	C	15G
C141	B	C	20E
C143	A	D	17G
C146	B	C	18E
C147	B	C	17D
C148	B	C	18D
C153	B	C	19D
C154	B	C	13H
C158	B	C	19D
C164	B	C	18I
C165	B	C	20G
C167	B	C	14H
C181	B	C	18C
C191	B	C	18E
C201	B	C	15N
C202	B	C	15N
C203	B	C	15N
C204	B	C	14N
C205	B	C	14N
C206	B	C	14N
C207	B	C	14N
C208	B	C	15N
C209	B	C	15O
C210	B	C	15O
C211	A	D	14O
C212	B	C	15O
C213	A	D	15O
C215	A	D	13N
C258	B	C	14O
C281	B	C	13M
C282	B	C	14N
C401	A	D	15K
C402	B	C	15K
C403	B	C	16K
C404	B	C	16K
C405	B	C	16K
C406	B	C	16K
C407	B	C	16J
C408	B	C	16K
C409	B	C	16K
C2001	B	C	14J
C2002	A	D	14J
C2003	B	C	16I
C2004	A	D	14K
C2005	B	C	14K
C2006	B	C	16I
C2007	A	D	14J
C2008	B	C	16I
C2009	A	D	14J
C2010	A	D	14I
C2011	B	C	16I
C2013	B	C	15I
C2015	A	D	13J
C2016	A	D	13J
C2018	B	C	15I
C2020	B	C	15I
C2021	B	C	13J
C2051	B	C	10J
C2052	A	D	10K
C2053	B	C	11K
C2054	B	C	11K
C2055	A	D	12K
C2061	A	D	11J
C2062	B	C	11J
C2063	B	C	11K
C2064	A	D	12K
C2101	A	D	11M
C2102	A	D	14K
C2103	B	C	11L
C2201	A	D	16M
C2202	A	D	15L
C2203	A	D	16L
C2204	A	D	16L
C2205	A	D	16L
C2206	A	D	16L
C2207	B	C	16L
C2208	A	D	16K
C2209	A	D	17L
C2210	A	D	17L
C2211	B	C	17L
C2212	B	C	17L
C2213	A	D	18K
C2214	B	C	18L
C2215	A	D	18L
C2216	A	D	19L
C2217	B	C	19M
C2218	B	C	18M
C2219	A	D	19M
C2220	A	D	19M
C2221	B	C	18M
C2222	A	D	19M
C2223	A	D	18N
C2224	A	D	18N
C2225	A	D	18M
C2226	A	D	18N
C2227	A	D	17N
C2228	A	D	17N
C2229	A	D	16N
C2230	A	D	16N
C2231	A	D	17M
C2232	A	D	16M
C2233	A	D	16M
C2234	A	D	16M
C2236	A	D	19N
C2239	B	C	15L
C2251	B	C	17J
C2252	B	C	18J
C2253	B	C	18J
C2254	A	D	18K
C2255	B	C	18K
C2256	B	C	17K
C2257	B	C	17K
C2258	B	C	17K
C2259	B	C	14L
C2260	B	C	19L
C2261	B	C	19L
C2262	B	C	17J
C3001	A	D	8B
C3002	B	C	5B
C3003	A	D	5B
C3004	A	D	5B
C3005	B	C	5A
C3006	B	C	16D
C3007	B	C	4D
C3008	B	C	20E
C3009	B	C	17A
C3010	B	C	9B
C3011	A	D	7G
C3012	B	C	16D
C3013	A	D	16C
C3014	A	D	16C
C3015	A	D	13E
C3016	B	C	14D
C3017	B	C	14F
C3018	A	D	14E
C3019	B	C	14E
C3020	B	C	20C
C3021	B	C	20C
C3022	B	C	20C
C3023	B	C	6H
C3024	B	C	8H
C3025	A	D	7H
C3026	B	C	7H
C3027	B	C	8J
C3028	B	C	17A
C3030	B	C	7A
C3031	B	C	3B
C3032	B	C	3B
C3033	B	C	3B
C3034	B	C	3B
C3035	B	C	9B
C3038	B	C	8I
C3039	B	C	8I
C3040	B	C	7B
C3041	B	C	7B
C3042	B	C	11B
C3043	B	C	11B
C3301	B	C	13F
C3302	A	D	13F
C3303	B	C	14G
C3304	A	D	10E
C3305	A	D	9E
C3306	B	C	9D
C3307	B	C	10F
C3308	B	C	12G
C3309	B	C	13G
C4001	B	C	11I
C4002	B	C	9J
C4003	B	C	12I
C4004	B	C	11I
C4005	B	C	11I
C4006	A	D	10H
C4007	B	C	10H
C4008	B	C	10I
C4009	A	D	10H
C4010	A	D	10H
C4011	A	D	10I
C4012	B	C	10I
C4013	A	D	10H
C4014	B	C	9I
C4015	B	C	10I
C4016	B	C	10J
C4017	B	C	10J
C4018	B	C	10I
C4201	B	C	12H
C4202	B	C	11H
C4203	B	C	11H
C4204	B	C	11H
C4205	A	D	11H
C4206	B	C	11H
C5001	A	D	2O
C5002	A	D	3N
C5003	A	D	5P
C5005	A	D	2M
C5006	A	D	3M
C5101	A	D	3K
C5102	A	D	2J
C5103	B	C	2K
C5104	A	D	3L
C5105	A	D	2L
C5106	A	D	3L
C5107	A	D	2K
C5108	A	D	2K
C5201	A	D	1H
C5202	A	D	3H
C5203	A	D	4F
C5204	A	D	2F
C5205	A	D	2F
C5206	A	D	4H
C5207	A	D	4H
C5208	A	D	2H
C5301	A	D	3D
C5302	A	D	3E
C5303	A	D	4D
C5306	B	C	1F
C5307	A	D	4I
C5308	B	C	2D
C5309	A	D	2C
C5310	A	D	1C
C5314	B	C	2C
C5315	A	D	2B
C5316	A	D	1E
C5317	A	D	1D
C6001	A	D	21M
C6002	B	C	21L
C6003	A	D	21I
C6004	B	C	20I
C6005	A	D	20O
C6006	B	C	21N
C6008	B	C	21L
C6012	A	D	20O
C6014	B	C	21P
C6016	B	C	21L
C6020	B	C	21K
C6021	B	C	21K
C6022	B	C	21K
C6023	B	C	21K
C6024	B	C	22I
C6027	B	C	22O
C6031	A	D	20I
C6032	B	C	21J
C6033	B	C	21H
C6036	B	C	21I
C6051	B	C	21O
C6052	B	C	21O
C6053	B	C	21O
C6071	B	C	22I
C7169	A	D	16P
C7170	B	C	16O
C7171	A	D	15P
C7172	B	C	16O
C7173	A	D	10P
C7174	B	C	10P
C7175	B	C	8P
C7176	A	D	6P
C7177	B	C	8P
C7178	B	C	6P
C7179	B	C	10O
C7201	B	C	11B
CONNECTOR			
CN1	A	D	15K
CN3	A	D	12M
CN101	A	D	13N
CN102	A	D	10N
CN302	A	D	7M
CN303	A	D	20N
CN501	A	D	7N
CN2001	A	D	10J
CN2002	A	D	20G
CN2101	A	D	11L
CN2701	A	D	13M
CN3001	A	D	8H
CN3003	A	D	8J
CN3004	A	D	10A
CN3005	A	D	3A
CN3006	A	D	3C
CN3008	A	D	17P
CN3301	A	D	14H
CN4001	A	D	6L
CN4002	A	D	9M
CN5001	A	D	1P
CN7104	A	D	10P
CN7105	A	D	13P
CN7106	A	D	19P
CN7162	A	D	21A
CN7163	A	D	20B
CIRCUIT PROTECTOR			
CP3001	A	D	8G
CP3002	A	D	13F
CP3003	A	D	7H
CP4001	A	D	6F
CP5301	A	D	2E
CP5302	A	D	7G
CP5303	A	D	2C
DIODE			
D6	A	D	14G
D11	A	D	15G
D152	A	D	9K
D153	A	D	14H
D201	A	D	14N
D202	A	D	14N
D2001	A	D	14J
D2201	A	D	18N
D2252	A	D	20B
D2253	B	C	18L
D3001	A	D	13D
D3002	A	D	5C
D3003	A	D	5B
D3004	A	D	5C
D3005	A	D	6B
D3006	A	D	6B
D3007	A	D	8D
D3008	A	D	8F
D3009	A	D	8F
D3011	A	D	3C
D3012	A	D	3B
D3013	A	D	8B
D3014	A	D	8E
D5001	B	C	3N
D5101	A	D	3K
D5102	A	D	3J
D5103	A	D	4M
D5104	A	D	3L
D5105	A	D	1K
D5201	A	D	1I
D5202	A	D	4H
D5206	A	D	2H
D5209	A	D	3H
D5210	A	D	3H
D5211	A	D	1H
D5301	A	D	3G
D5302	A	D	4F
D5303	A	D	1B
D5304	A	D	1F
D5305	A	D	2F
D5307	A	D	3I
D5308	A	D	4E
D5311	A	D	2D
D5312	A	D	3D
D5313	A	D	2B
D5314	A	D	2B
D5317	A	D	1D
D5321	B	C	1E
D5351	A	D	4F
D5352	A	D	4F
D5353	A	D	5F
D5354	A	D	4G
D6001	A	D	20M
D6002	A	D	20O
D7161	A	D	16P
IC			
IC1	B	C	16H
IC2	B	C	18F
IC3	B	C	18D
IC201	A	D	15N
IC2201	B	C	17M
IC2251	B	C	17K
IC3001	B	C	15D
IC3002	A	D	6H
IC3003	B	C	14E
IC3004	A	D	20C
IC3301	B	C	10D
IC3302	A	D	12G
IC4001	A	D	11I
IC6080	B	C	22M
IC7201	B	C	12C
JACK			
J7108	A	D	20P
J7161	A	D	13P
J7162	A	D	14P
J7163	A	D	8P
COIL			
L1	A	D	19I
L2	A	D	20F
L3	A	D	19F
L4	A	D	20F
L5	A	D	18D
L6	A	D	18D
L7	A	D	14F
L8	A	D	12H
L9	A	D	13I
L12	A	D	18E
L13	A	D	18E
L14	A	D	12I
L16	A	D	20F
L18	A	D	17G
L23	B	C	15F
L102	A	D	13G
L103	A	D	14G
L104	A	D	14F
L107	A	D	9O
L151	A	D	19D
L202	A	D	16O
L203	A	D	15N
L204	A	D	13N
L252	A	D	14O
L401	A	D	14K
L402	A	D	16K
L2001	A	D	14J
L2251	A	D	18J
L2252	A	D	19L
L3001	A	D	6B
L3003	A	D	7H
L3301	A	D	8E
L3302	A	D	13F
L4001	A	D	11I
L4201	A	D	11H
L5201	A	D	3G
L5202	A	D	2F
L5301	A	D	3D
L6002	A	D	21P
L6031	A	D	20J
L6050	A	D	21O
L7168	A	D	16O
L7169	A	D	10P
L7201	A	D	9B
TRANSISTOR			
Q1	B	C	19E
Q2	B	C	18G
Q6	B	C	17E
Q13	B	C	19F
Q14	B	C	19E
Q15	B	C	19E
Q16	B	C	18E
Q17	B	C	12I
Q18	B	C	12I
Q19	B	C	12J
Q21	B	C	13H
Q26	B	C	21B
Q34	B	C	18J
Q35	B	C	17I
Q36	B	C	17I
Q37	B	C	17I
Q38	B	C	19D
Q39	B	C	19C
Q44	B	C	12H
Q45	B	C	19E
Q46	B	C	18D
Q47	B	C	18G
Q48	B	C	18G
Q101	B	C	13I
Q102	B	C	18C
Q103	B	C	8N
Q104	B	C	9M
Q141	B	C	18D
Q142	B	C	17D
Q152	B	C	18H
Q153	B	C	19D
Q154	B	C	20D
Q157	B	C	13H
Q158	B	C	13H
Q159	B	C	14H
Q160	B	C	9M
Q161	B	C	19C
Q181	B	C	18C
Q182	B	C	18C
Q203	B	C	13O
Q401	B	C	14L
Q402	B	C	14L
Q403	B	C	15K
Q404	B	C	16K
Q405	B	C	16J
Q2001	B	C	13K
Q2002	B	C	13K
Q2003	B	C	13K
Q2051	B	C	11K
Q2052	B	C	12K
Q2053	B	C	13K
Q2054	B	C	12K
Q2055	B	C	13K
Q2061	B	C	12J
Q2062	B	C	12K
Q2063	B	C	12K
Q2101	B	C	11L
Q2102	B	C	14K
Q2201	B	C	17O
Q2202	B	C	18O
Q2203	B	C	18O
Q2251	B	C	18K
Q2253	B	C	14L
Q2254	B	C	19L
Q2255	B	C	19L
Q2256	B	C	14L
Q2257	B	C	14L
Q2711	B	C	14M
Q2712	B	C	15L
Q2713	B	C	14M
Q2714	B	C	14L
Q3001	A	D	5E
Q3002	A	D	20E
Q3003	B	C	5B
Q3005	B	C	7H
Q3006	B	C	9B
Q3008	B	C	13D
Q3301	B	C	12F
Q4001	B	C	9H
Q4201	B	C	11H
Q5101	A	D	2L
Q5102	A	D	2L
Q5301	A	D	4F
Q5302	B	C	4G
Q5303	A	D	4E
Q5304	B	C	4E
Q5305	A	D	3H
Q5306	A	D	2C
Q5312	B	C	1H
Q5313	B	C	1F
Q5314	B	C	4G
Q5315	A	D	2E
Q5316	B	C	2D
Q5317	A	D	2C
Q5318	B	C	1B
Q5319	A	D	4E
Q5320	B	C	2E
Q5321	B	C	1E
Q5322	A	D	2D
Q5323	A	D	3E
Q5451	A	D	4E
Q5452	B	C	5F
Q6001	A	D	20N
Q6030	B	C	22H
Q6031	B	C	21H
Q6032	B	C	21H
Q6033	B	C	21J
Q6035	B	C	22J
Q7161	B	C	16P
Q7162	B	C	15O
Q7163	B	C	8P
Q7164	B	C	7P
RESISTOR			
R1	B	C	19F
R2	B	C	18H
R3	B	C	18G
R4	B	C	19E
R5	B	C	19D
R6	B	C	20E
R7	B	C	17F
R8	B	C	17F
R9	B	C	17F
R10	B	C	17E
R11	B	C	18D
R13	B	C	16E
R14	B	C	16F
R15	B	C	15F
R16	B	C	15F
R17	B	C	15G
R18	B	C	15F
R19	B	C	15G
R20	B	C	15H
R21	B	C	13H
R22	B	C	14H
R23	B	C	13I
R24	B	C	14I
R25	B	C	13J
R46	B	C	19F
R47	B	C	19F
R48	B	C	19F
R49	B	C	19F
R50	B	C	19E
R52	B	C	17I
R54	B	C	19E
R55	B	C	19E
R56	B	C	16F
R57	B	C	18H
R59	B	C	17F
R60	B	C	12E
R61	B	C	12E
R62	B	C	8H
R63	B	C	13H
R64	B	C	13I
R65	B	C	13J
R67	B	C	15H
R68	B	C	17F
R69	B	C	17E
R71	B	C	13I
R72	B	C	8O
R73	B	C	12E
R74	B	C	12I
R75	B	C	13H
R76	B	C	16E
R77	B	C	13J
R94	B	C	18F
R95	B	C	21C
R96	B	C	21B
R97	B	C	21C
R98	B	C	21B
R99	B	C	21B
R101	B	C	12I
R116	B	C	19G
R117	B	C	13H
R120	B	C	18I
R121	B	C	20G
R122	B	C	19C
R123	B	C	19C
R124	B	C	19C
R126	B	C	8N
R127	B	C	8N
R128	B	C	7N
R129	B	C	8M
R130	B	C	8M
R133	B	C	7J
R137	B	C	19G
R138	B	C	7I
R139	B	C	19D
R140	B	C	19D
R141	B	C	18E
R143	B	C	12O
R150	B	C	16F
R151	B	C	9M
R154	B	C	10M
R156	B	C	19D
R157	B	C	19D
R158	B	C	20E
R159	B	C	19C
R161	B	C	13H
R162	B	C	13H
R163	B	C	13H
R164	B	C	14H
R165	B	C	14H
R166	B	C	14H
R168	B	C	18G
R169	B	C	19G
R172	B	C	9M
R177	B	C	14I
R178	B	C	18G
R179	B	C	18F
R201	B	C	15N
R204	B	C	14N
R205	B	C	14N
R206	B	C	14N
R208	B	C	14O
R209	B	C	15O
R211	B	C	15O
R213	B	C	14O
R226	B	C	14O
R401	B	C	14L
R402	B	C	15L
R403	B	C	15K
R404	B	C	16K
R405	B	C	17K
R408	B	C	16K
R409	B	C	16J
R410	B	C	16J
R2001	B	C	17I
R2002	B	C	13L
R2003	B	C	16I
R2004	B	C	16I
R2005	B	C	14K
R2006	B	C	13K
R2007	B	C	13J
R2008	B	C	13J
R2009	B	C	15I
R2010	B	C	15I
R2013	B	C	15L
R2014	B	C	15I
R2015	B	C	13J
R2016	B	C	13J
R2018	B	C	13K
R2019	B	C	13K
R2051	B	C	10K
R2052	B	C	10K
R2053	B	C	10K
R2054	B	C	11K
R2055	B	C	11K
R2056	A	D	12K
R2057	B	C	12K
R2058	B	C	13K
R2059	B	C	12K
R2060	B	C	13K
R2061	B	C	11J
R2062	B	C	12J
R2063	B	C	12J
R2101	B	C	11L
R2102	B	C	11M
R2103	B	C	11L
R2104	B	C	11L
R2105	B	C	14K
R2201	B	C	15M
R2202	B	C	15L
R2203	B	C	15L
R2204	B	C	16L
R2205	B	C	16L
R2206	B	C	16M
R2207	B	C	15L
R2208	B	C	16L
R2209	B	C	16L
R2210	B	C	16L
R2211	B	C	16L
R2212	B	C	18L
R2213	B	C	18M
R2214	B	C	18M
R2215	B	C	18N
R2216	B	C	18N
R2217	B	C	18N
R2218	B	C	17N
R2219	B	C	18N
R2220	B	C	18N
R2221	B	C	18N
R2222	B	C	17N
R2223	B	C	17N
R2224	B	C	17N
R2225	B	C	17N
R2226	B	C	16N
R2227	B	C	16N
R2228	B	C	16M
R2229	B	C	16N
R2230	B	C	15M
R2231	B	C	16M
R2232	B	C	15L
R2233	B	C	17N
R2234	B	C	15L
R2235	B	C	17N
R2240	B	C	16M
R2251	B	C	18J
R2253	B	C	18K
R2254	B	C	18K
R2255	B	C	17K
R2256	B	C	17K
R2257	B	C	14L
R2258	B	C	19K
R2259	B	C	18L
R2260	B	C	18L
R2261	B	C	14L
R2262	B	C	13L
R2711	B	C	14M
R2712	B	C	15M
R2713	B	C	14M
R2714	B	C	15M
R2715	B	C	14M
R2716	B	C	14L
R3001	B	C	15E
R3002	B	C	14F
R3003	B	C	13E
R3004	B	C	13E
R3010	B	C	14E
R3014	B	C	13E
R3015	B	C	13E
R3016	B	C	13E
R3017	B	C	13E
R3018	B	C	13E
R3019	B	C	13D
R3020	B	C	13D
R3021	B	C	13D
R3022	B	C	13D
R3023	B	C	12D
R3024	B	C	13D
R3025	B	C	13C
R3031	B	C	12B
R3032	B	C	12B
R3033	B	C	13B
R3034	B	C	13B
R3035	B	C	12B
R3036	B	C	13B
R3037	B	C	14C
R3038	B	C	14B
R3039	B	C	14B
R3040	B	C	14B
R3041	B	C	15B
R3042	B	C	15B
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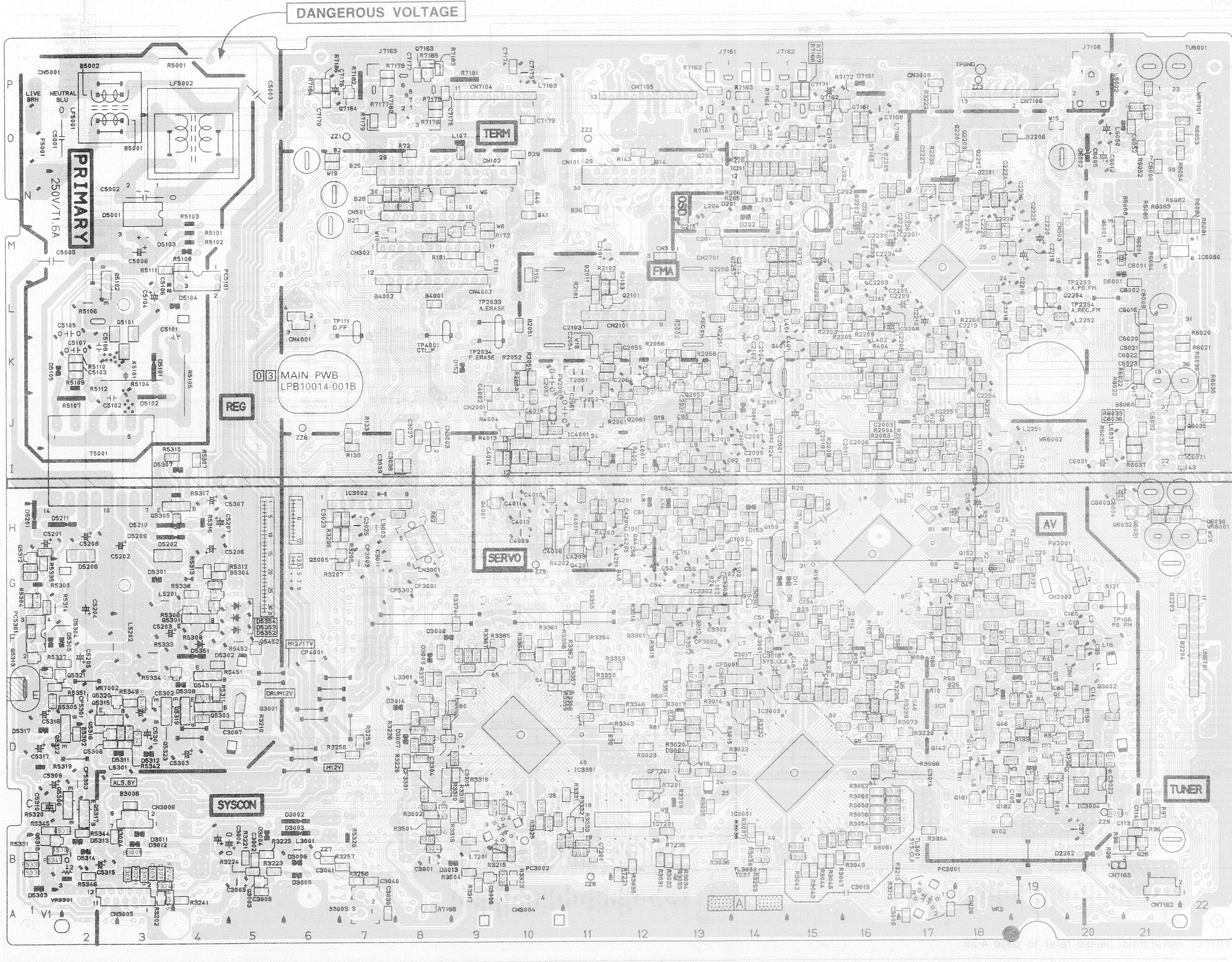
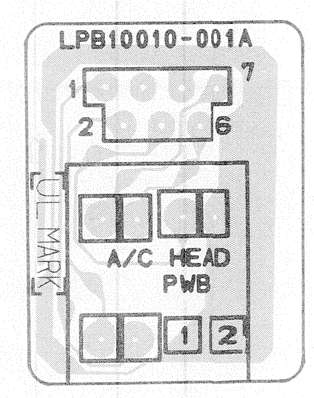
R3044	B	C	15B
R3045	B	C	15B
R3046	B	C	15B
R3047	B	C	15B
R3048	B	C	15B
R3049	B	C	16B
R3050	B	C	15B
R3051	B	C	16B
R3052	B	C	16B
R3053	B	C	16C
R3054	B	C	16C
R3055	B	C	16C
R3056	B	C	16C
R3057	B	C	16C
R3058	B	C	16C
R3059	B	C	16C
R3060	B	C	16C
R3061	B	C	16C
R3062	B	C	16C
R3064	B	C	17B
R3067	B	C	16D
R3068	B	C	17D
R3069	B	C	16D
R3070	B	C	16D
R3071	B	C	16D
R3073	B	C	16E
R3074	B	C	16E
R3075	B	C	16E
R3076	B	C	16E
R3077	B	C	16E
R3078	B	C	16E
R3079	B	C	15E
R3080	B	C	15E
R3201	B	C	3B
R3202	B	C	3A
R3203	B	C	10B
R3204	B	C	10C
R3205	B	C	7H
R3206	B	C	6H
R3207	B	C	7G
R3209	A	D	12C
R3210	B	C	5E
R3211	B	C	20D
R3212	B	C	17A
R3213	B	C	17A
R3214	B	C	10B
R3215	B	C	9B
R3220	B	C	17D
R3221	B	C	5B
R3222	B	C	17P
R3223	B	C	5B
R3224	B	C	5B
R3225	B	C	5B
R3226	B	C	8D
R3227	B	C	8D
R3228	B	C	8E
R3229	B	C	8D
R3230	B	C	13E
R3231	B	C	14E
R3232	B	C	14D
R3233	B	C	20D
R3234	B	C	20D
R3235	B	C	20D
R3236	B	C	20D
R3237	B	C	16E
R3238	B	C	16E
R3239	B	C	16E
R3240	B	C	3B
R3241	B	C	4A
R3242	B	C	3B
R3243	B	C	8B
R3244	B	C	15E
R3246	B	C	15E
R3247	B	C	15E
R3248	B	C	15E
R3249	B	C	15E
R3250	B	C	13E
R3252	B	C	13D
R3253	B	C	14B
R3254	B	C	16E
R3255	B	C	3A
R3256	B	C	7B
R3257	B	C	6B
R3258	B	C	7D
R3259	B	C	7D
R3301	B	C	8D
R3302	B	C	8D
R3303	B	C	8D
R3304	B	C	8C
R3310	B	C	9D
R3314	B	C	8C
R3315	B	C	9C
R3316	B	C	9C
R3317	B	C	9B
R3318	B	C	9C
R3319	B	C	9C
R3320	B	C	9C
R3321	B	C	9C
R3322	B	C	9C
R3323	B	C	10B
R3324	B	C	10C
R3325	B	C	10C
R3326	B	C	10C
R3327	B	C	10C
R3331	B	C	11C
R3332	B	C	11C
R3333	B	C	11C
R3343	B	C	11D
R3344	B	C	11E
R3345	B	C	12E
R3346	B	C	11E
R3347	B	C	11E
R3348	B	C	11E
R3349	B	C	11E
R3350	B	C	11E
R3351	B	C	11E
R3352	B	C	11F
R3353	B	C	11F
R3354	B	C	11F
R3355	B	C	11F
R3356	B	C	11F
R3357	B	C	11E
R3358	B	C	10E
R3359	B	C	10E
R3360	B	C	10F
R3361	B	C	10F
R3362	B	C	10F
R3364	B	C	10F
R3365	B	C	9F
R3366	B	C	9F
R3367	B	C	9F
R3368	B	C	9F
R3369	B	C	9F
R3370	B	C	9E
R3371	B	C	9F
R3373	B	C	9E
R3374	B	C	9F
R3375	B	C	8F
R3376	B	C	8E
R3377	B	C	8E
R3378	B	C	8E
R3379	B	C	8E
R3380	B	C	8E
R3501	B	C	8C
R3502	B	C	8C
R3503	B	C	8C
R3504	B	C	9B
R3505	B	C	8B
R3506	B	C	8C
R3507	B	C	9E
R3508	B	C	20C
R3509	B	C	8D
R3510	B	C	15B
R3511	B	C	13E
R3512	B	C	13F
R3513	B	C	12F
R3514	B	C	12F
R3515	B	C	12F
R3516	B	C	12F
R3517	B	C	9B
R3518	B	C	11B
R4001	B	C	11I
R4003	B	C	10J
R4004	B	C	10J
R4005	B	C	10J
R4006	B	C	11I
R4007	B	C	12I
R4008	B	C	10I
R4009	B	C	10H
R4010	B	C	10I
R4011	B	C	10H
R4012	B	C	8D
R4013	B	C	9J
R4014	B	C	10J
R4015	B	C	10I
R4201	B	C	11H
R4202	B	C	11H
R4203	B	C	11H
R5001	A	D	3Q
R5101	A	D	4M
R5102	A	D	4M
R5103	A	D	4N
R5104	A	D	2K
R5105	A	D	4J
R5106	A	D	2L
R5107	A	D	2J
R5108	B	C	4M
R5109	B	C	2K
R5110	B	C	2K
R5111	B	C	3M
R5112	A	D	2K
R5301	B	C	1G
R5302	B	C	1G
R5303	B	C	1G
R5304	B	C	1G
R5305	A	D	1G
R5307	B	C	4I
R5308	B	C	4G
R5309	B	C	4F
R5310	B	C	4E
R5311	B	C	4E
R5312	B	C	4G
R5313	B	C	4G
R5314	A	D	1G
R5315	B	C	3I
R5316	A	D	4H
R5317	A	D	4I
R5319	A	D	1D
R5320	B	C	1C
R5328	A	D	7C
R5330	B	C	1B
R5331	B	C	1B
R5332	B	C	1B
R5333	A	D	3F
R5334	A	D	3E
R5335	B	C	1G
R5336	B	C	1G
R5337	B	C	2F
R5338	B	C	4G
R5339	B	C	4G
R5340	B	C	3D
R5341	B	C	3D
R5342	B	C	3D
R5343	B	C	3D
R5344	B	C	2C
R5345	B	C	1C
R5346	B	C	2B
R5347	B	C	1B
R5348	B	C	3E
R5349	B	C	3E
R5350	B	C	1E
R5351	B	C	1E
R5352	B	C	4H
R5451	B	C	4F
R5452	A	D	5F
R6001	B	C	21M
R6002	B	C	20M
R6020	B	C	22K
R6021	B	C	22K
R6022	B	C	21K
R6023	B	C	21K
R6030	B	C	21H
R6032	B	C	20I
R6033	B	C	21J
R6034	B	C	21H
R6035	B	C	22K
R6037	B	C	21I
R6038	B	C	22J
R6039	B	C	22J
R6051	B	C	21P
R6052	B	C	21O
R6053	B	C	22O
R6054	B	C	22O
R6071	B	C	22J
R6072	B	C	22J
R6080	B	C	22M
R6081	B	C	22M
R6082	B	C	22N
R6083	B	C	21N
R6084	B	C	21M
R6085	B	C	21M
R6086	B	C	21M
R7161	B	C	13O
R7162	B	C	13P
R7163	B	C	14P
R7164	B	C	14P
R7165	B	C	15P
R7166	B	C	15P
R7167	B	C	15P
R7168	B	C	8A
R7169	B	C	16O
R7170	B	C	16O
R7171	B	C	16O
R7172	A	D	16P
R7173	B	C	15P
R7174	B	C	15O
R7175	B	C	8P
R7176	B	C	8P
R7177	B	C	7P
R7178	B	C	7P
R7179	B	C	7O
R7180	B	C	7O
R7181	A	D	8P
R7182	A	D	7P
R7183	B	C	8P
R7184	B	C	6P
R7185	B	C	8P
R7186	B	C	6P
R7201	B	C	12C
R7221	B	C	11B
R7236	B	C	12B
SWITCH			
S3003	A	D	7A
TEST POINT			
TP106	A	D	21G
TP111	A	D	7L
TP2033	A	D	10L
TP2034	A	D	10K
TP2253	A	D	19L
TP2254	A	D	19L
TP4001	A	D	9L
TPGND	A	D	18P
OTHER			
CF3001	A	D	13E
CF3301	A	D	8C
CF7201	A	D	12C
F5001	A	D	1P
FL151	A	D	13H
FW2001	A	D	20G
K5101	A	D	3K
LF5001	A	D	2P
LF5002	A	D	5P
PC3001	A	D	17A
PC3002	A	D	9C
PC03115	A	D	15H
PC03894	A	D	10J
PC5101	A	D	4M
PC5301	A	D	1F
T2051	A	D	11K
T2052	A	D	11J
T5001	A	D	1J
TL3001	B	C	17C
TL3003	B	C	14B
TU6001	A	D	21P
UN6701	A	D	22E
VR2251	A	D	14K
VR5301	A	D	2B
X1	A	D	19G
X2	A	D	18G
X3001	A	D	14F
X4201	A	D	11H

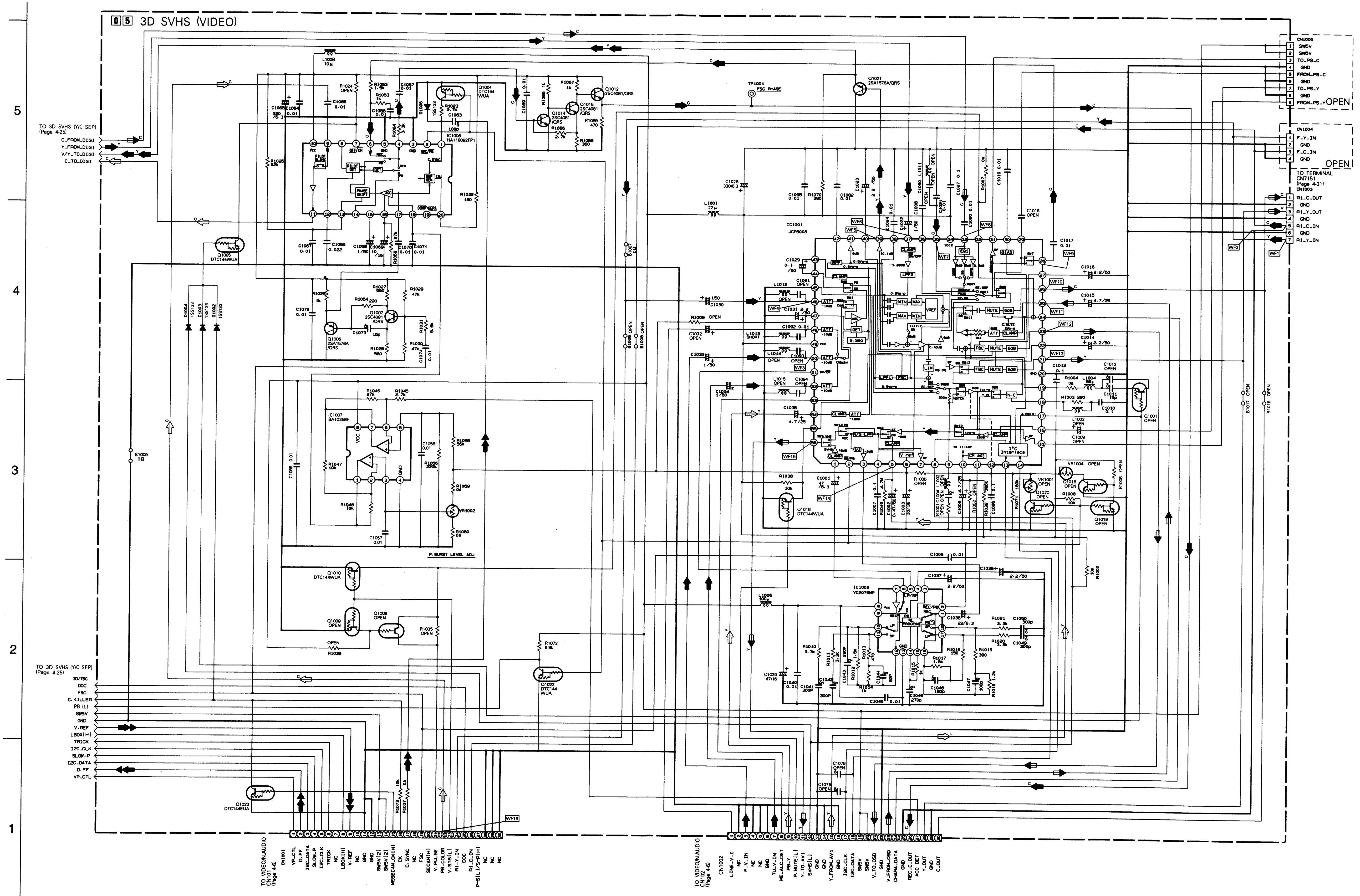
4.9 MAIN AND A/C HEAD CIRCUIT BOARDS


DANGEROUS VOLTAGE
PRIMARY
250V/T1.6A
LIVE BRN
NEUTRAL BLU
CN5001
F5001
LF5001
LF5002
B5002
R5001
C5003
T5001
REG
TERM
OSD
FMA
SERVO
SYSCON
AV
TUNER
MAIN PWB
LPB10014-001B
CN101
CN102
CN301
CN2101
CN4001
CN7104
CN7105
CN7106
CN3001
CN3004
CN3005
CN3006
CN7162
CN7163
IC1
IC3
IC291
IC2251
IC3001
IC3002
IC3003
IC3004
IC3301
IC4001
IC6060
IC7201
TP2033 A.ERASE
TP2034 F.ERASE
TP4001 CTL.P
TP111 D.FF
TP2253 A.PB.FM
TP2254 A.REC.FM
TP106 PB.FM
TP3001 SYS.CLK
TL3003 TEST
H12/17V
DRUM12V
M12V
AL5.6V
TPGND
J7161
J7162
J7163
J7108
TU6001
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
P
O
N
M
L
K
J
I
H
G
F
E
D
C
B
A

— A/C HEAD —


LPB10010-001A
1
2
7
6
A/C HEAD PWB
1
2

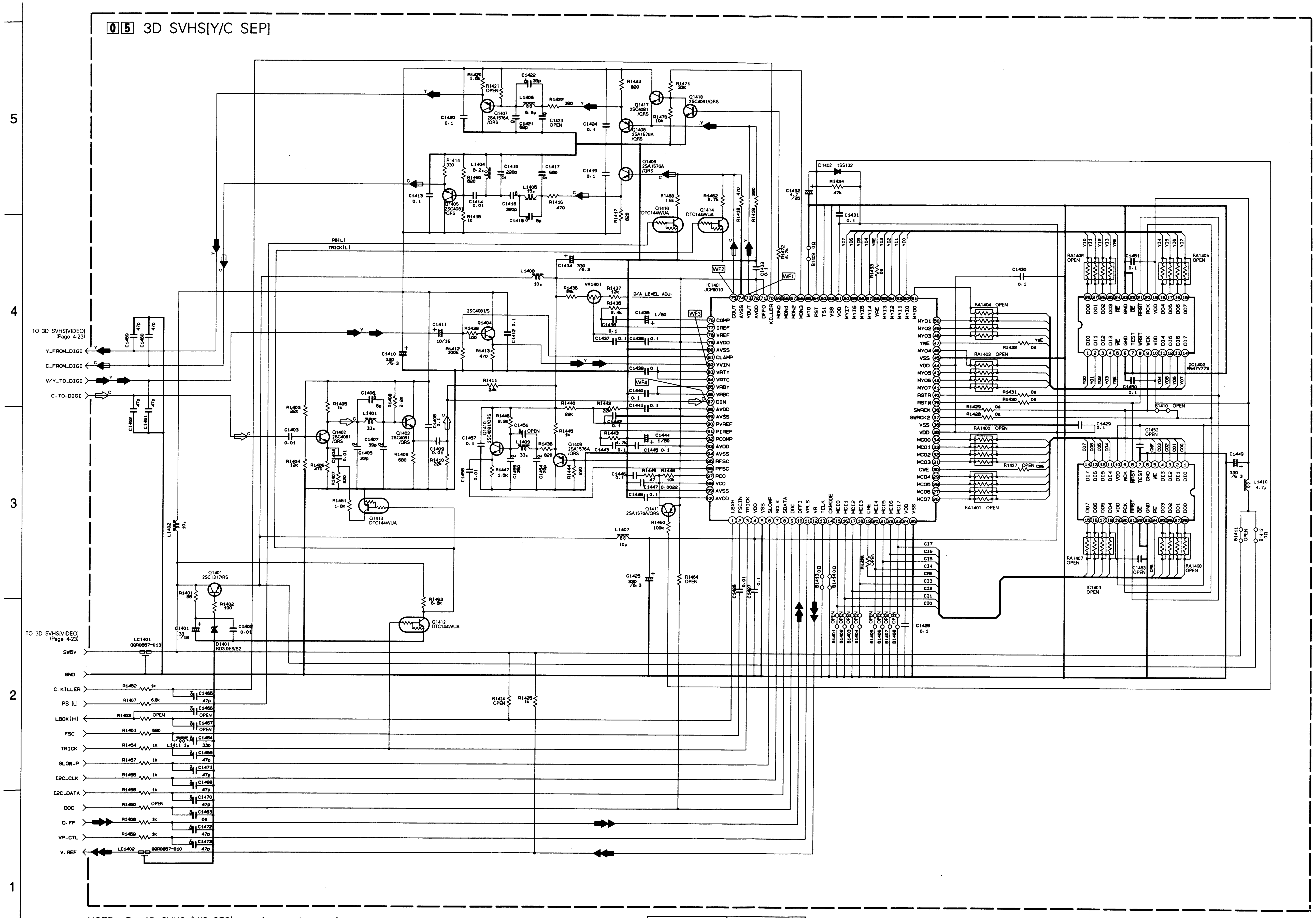
4.10 3D SVHS (VIDEO) SCHEMATIC DIAGRAM



05 3D SVHS (VIDEO)
5
4
3
2
1
TO 3D SVHS (Y/C SEP)
(Page 4-25)
C_FROM_DIGI
Y_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
TO 3D SVHS (Y/C SEP)
(Page 4-25)
3D/TBC
DOC
FSC
C.KILLER
PB (L)
SW5V
GND
V.REF
LBOX(H)
TRICK
I2C_CLK
SLOW_P
I2C_DATA
D.FF
VP_CTL
IC1006
HA118092FP1
IC1007
BA10358F
IC1001
JCP8008
IC1002
VC2076MP
Q1004
DTC144
WUA
Q1012
2SC4081/QRS
Q1014
2SC4081
/QRS
Q1015
2SC4081
/QRS
Q1021
2SA1576A/QRS
Q1005
DTC144WUA
Q1006
2SA1576A
/QRS
Q1007
2SC4081
/QRS
Q1010
DTC144WUA
Q1009
OPEN
Q1008
OPEN
Q1022
DTC144
WUA
Q1023
DTC144EUA
Q1016
DTC144WUA
Q1001
OPEN
Q1018
OPEN
Q1019
OPEN
Q1020
OPEN
TP1001
FSC PHASE
P. BURST LEVEL ADJ
VR1002
VR1001
OPEN
VR1004 OPEN
I²C Interface
WF16
WF1
WF2
CN1005
1 SW5V
2 SW5V
3 TO_PS_C
4 GND
5 FROM_PS_C
6 GND
7 TO_PS_Y
8 GND
9 FROM_PS_Y
OPEN
CN1004
1 F_Y_IN
2 GND
3 F_C_IN
4 GND
OPEN
TO TERMINAL
CN7151
(Page 4-31)
CN1003
1 R1_C_OUT
2 GND
3 R1_Y_OUT
4 GND
5 R1_C_IN
6 GND
7 R1_Y_IN
TO VIDEO/N.AUDIO
CN101
(Page 4-6)
CN1001
1 VP_CTL
2 D.FF
3 I2C_DATA
4 SLOW_P
5 I2C_CLK
6 TRICK
7 NC
8 LBOX(H)
9 V.REF
10 NC
11 GND
12 GND
13 SW5V(2)
14 SW5V(2)
15 MESECAM_CK(H)
16 CK
17 C.SYNC
18 NC
19 FSC
20 SECAM(H)
21 V.PULSE
22 PB_COLOR
23 V.STB(L)
24 R1_Y_IN
25 DOC
26 R1_C_IN
27 P-S(L)/S-P(H)
28 NC
29 NC
30 NC
TO VIDEO/N.AUDIO
CN102
(Page 4-6)
CN1002
1 LINE_V_I
2 NC
3 F_V_IN
4 NC
5 NC
6 GND
7 TU_V_IN
8 ME_ALC_DET
9 PB_Y
10 P.MUTE(L)
11 Y_TO_AV1
12 SVHS(L)
13 GND
14 GND
15 Y_FROM_AV1
16 GND
17 I2C_CLK
18 I2C_DATA
19 SW5V
20 SW5V
21 V_TO_OSD
22 GND
23 V_FROM_OSD
24 CHARA_DATA
25 GND
26 REC_C_OUT
27 ACC DET
28 Y_OUT
29 GND
30 C_OUT
A
B
C
D
E
F
G
H

NOTE : For 3D SVHS[VIDEO] waveforms, please refer to page 4-30.

4.11 3D SVHS (Y/C SEP) SCHEMATIC DIAGRAM

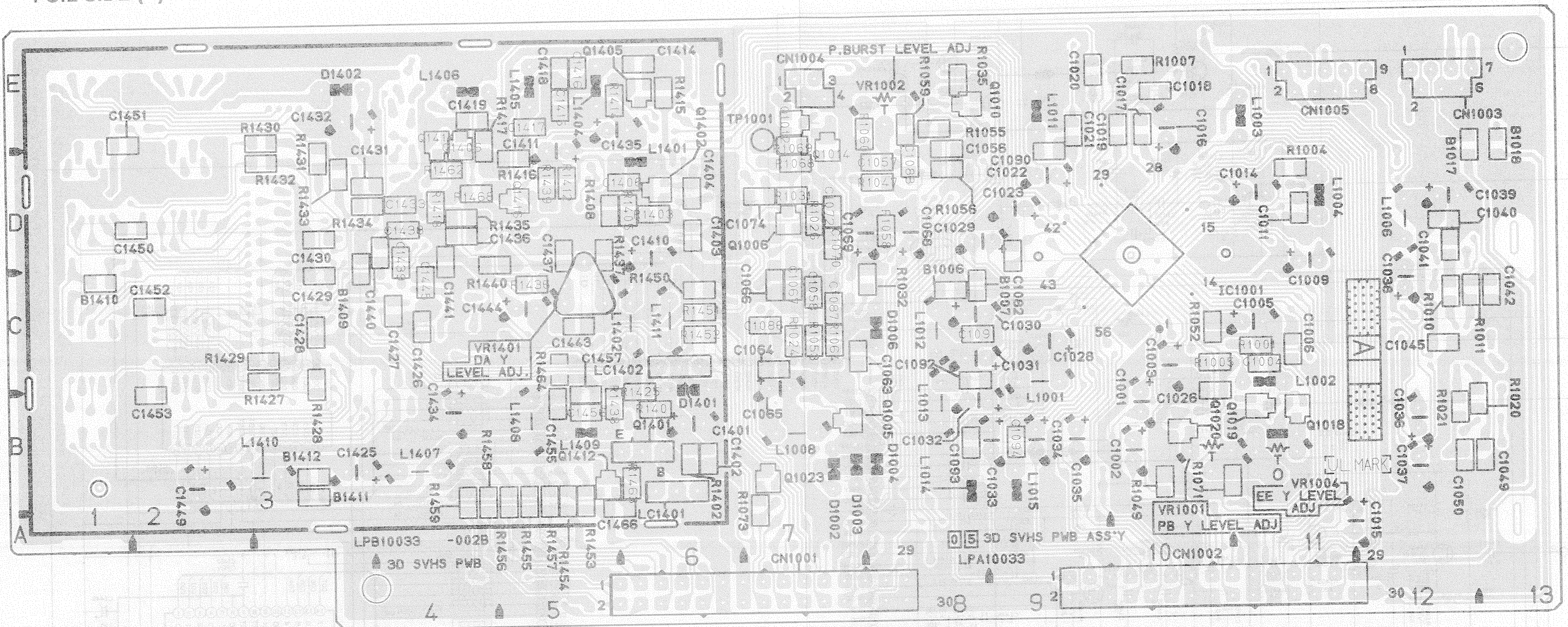

05 3D SVHS[Y/C SEP]
TO 3D SVHS(VIDEO) (Page 4-23)
Y_FROM_DIGI
C_FROM_DIGI
V/Y_TO_DIGI
C_TO_DIGI
SW5V
GND
C.KILLER
PB [L]
LBOX[H]
FSC
TRICK
SLOW_P
I2C_CLK
I2C_DATA
DOC
D.FF
VP_CTL
V.REF
IC1401 JCP8010
IC1402
IC1403 OPEN
Q1401 2SC1317/RS
Q1402 2SC4081 /QRS
Q1403 2SC4081 /QRS
Q1404 2SC4081/S
Q1405 2SC4081 /QRS
Q1406 2SA1576A /QRS
Q1407 2SA1576A /QRS
Q1408 2SA1576A /QRS
Q1409 2SA1576A /QRS
Q1411 2SA1576A/QRS
Q1412 DTC144WUA
Q1413 DTC144WUA
Q1414 DTC144WUA
Q1416 DTC144WUA
Q1417 2SC4081 /QRS
Q1418 2SC4081/QRS
D1401 RD3.9ES/B2
D1402 1SS133
VR1401
D/A LEVEL ADJ.
LC1401
LC1402
WF1
WF2
WF3
WF4
PB[L]
TRICK[L]

NOTE : For 3D SVHS (Y/C SEP) waveforms, please refer to page 4-30.
But the waveform point "WF1-WF4" are the shield case inside, therefore the measurement is impossible.
In this case, please refer to the waveforms of the 3D SVHS(VIDEO) as indicated in the following chart.

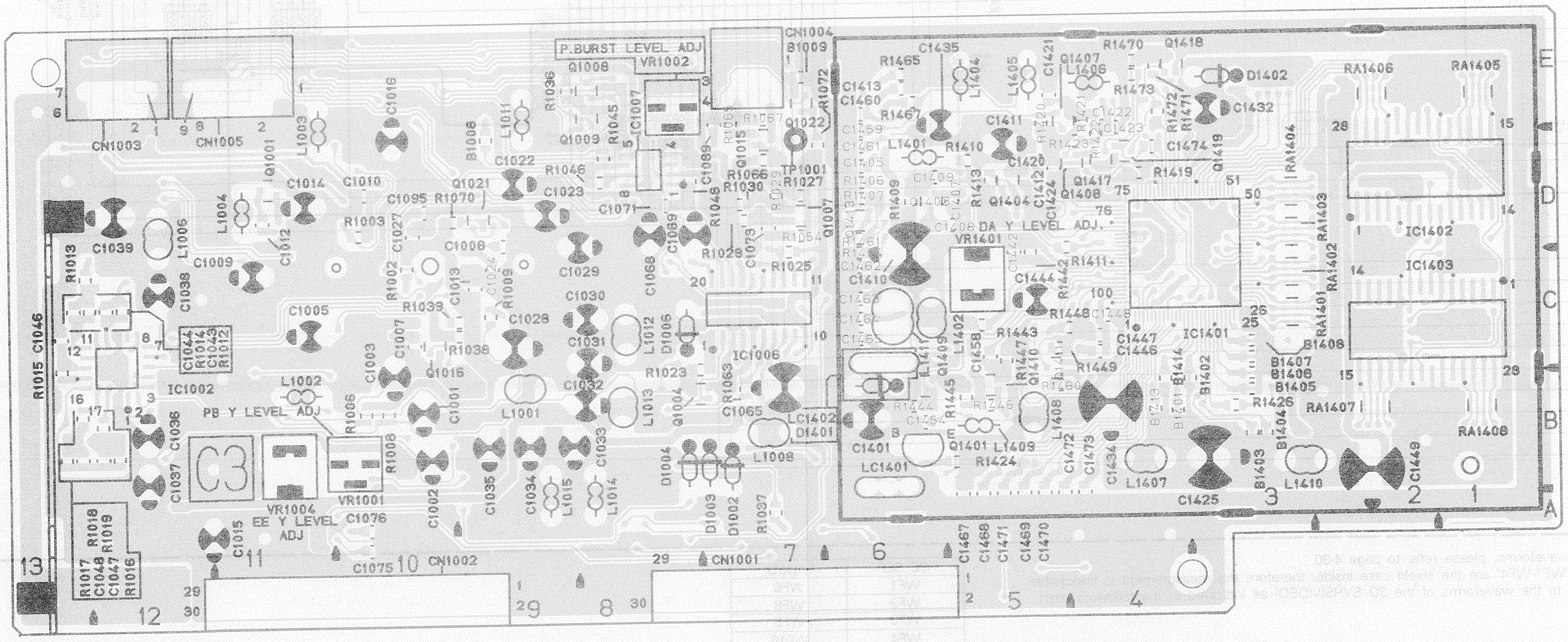
Y/C SEP	VIDEO
WF1	WF6
WF2	WF8
WF3	WF5
WF4	WF16

4.12 3D SVHS CIRCUIT BOARD

— FOIL SIDE (B) —


P.BURST LEVEL ADJ
VR1002
CN1004
CN1005
CN1003
TP1001
IC1001
VR1401
DA Y LEVEL ADJ.
VR1004
EE Y LEVEL ADJ
VR1001
PB Y LEVEL ADJ
UL MARK
LPB10033 -002B
3D SVHS PWB
05 3D SVHS PWB ASS'Y
LPA10033
CN1001
CN1002
A
B
C
D
E
1
2
3
4
5
6
7
8
9
10
11
12
13

— COMPONENT SIDE (A) —


P.BURST LEVEL ADJ
Q1008
VR1002
CN1004
B1009
CN1003
CN1005
TP1001
IC1002
IC1006
PB Y LEVEL ADJ
VR1004
EE Y LEVEL ADJ
VR1001
C3
DA Y LEVEL ADJ.
VR1401
IC1401
IC1402
IC1403
RA1405
RA1406
RA1407
RA1408
CN1001
CN1002
A
B
C
D
E
1
2
3
4
5
6
7
8
9
10
11
12
13

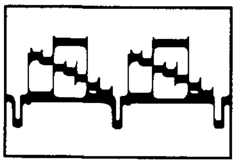
COMPONENT PARTS LOCATION GUIDE <3D SVHS>

REF.NO.	LOCATION		
CAPACITOR			
C1001	A	D	10B
C1002	A	D	10B
C1003	A	D	10C
C1004	B	C	11C
C1005	A	D	11C
C1006	B	C	11C
C1007	A	C	10C
C1008	A	C	9D
C1009	A	D	11C
C1010	A	C	10D
C1011	B	C	11D
C1012	A	C	11D
C1013	A	C	9C
C1014	A	D	11D
C1015	A	D	12A
C1016	A	D	10D
C1017	B	C	10E
C1018	B	C	10E
C1019	B	C	10E
C1020	B	C	9E
C1021	B	C	9E
C1022	A	D	9D
C1023	A	D	9D
C1024	A	C	9C
C1026	B	C	10B
C1027	A	C	10D
C1028	A	D	9C
C1029	A	D	9D
C1030	A	D	8C
C1031	A	D	9C
C1032	A	D	9B
C1033	A	D	9B
C1034	A	D	9B
C1035	A	D	9B
C1036	A	D	12B
C1037	A	D	12B
C1038	A	D	12C
C1039	A	D	12D
C1040	B	C	12D
C1041	B	C	12D
C1042	B	C	13C
C1043	A	C	12C
C1044	A	C	13C
C1045	B	C	12C
C1046	A	C	13C
C1047	A	C	12B
C1048	A	C	13B
C1049	B	C	13B
C1050	B	C	12B
C1056	B	C	8D
C1057	B	C	8D
C1058	B	C	7C
C1063	B	C	7C
C1064	B	C	7C
C1065	A	D	7B
C1066	B	C	7C
C1067	B	C	7C
C1068	A	D	8D
C1069	A	D	8D
C1070	B	C	7D
C1071	A	C	8D
C1072	B	C	7D
C1073	A	C	7D
C1074	B	C	7D
C1075	A	C	10A
C1076	A	C	10A
C1082	B	C	9D
C1086	B	C	7C
C1087	B	C	7C
C1088	B	C	8D
C1089	A	C	7E
C1090	B	C	9D
C1091	B	C	8C
C1092	B	C	8B
C1093	B	C	8B
C1094	B	C	9B
C1095	A	C	10D
C1401	A	D	6B
C1402	B	C	6B
C1403	B	C	6D
C1404	B	C	6D
C1405	A	C	6D
C1406	B	C	6D
C1407	A	C	5D
C1408	A	C	5D
C1409	A	C	6D
C1410	A	D	6D
C1411	A	D	5D
C1412	A	C	5D
C1413	A	C	6E
C1414	B	C	6E
C1415	B	C	5E
C1416	B	C	5E
C1417	B	C	5E
C1418	B	C	5E
C1419	B	C	4E
C1420	A	C	5D
C1421	A	C	5E
C1422	A	C	4E
C1423	A	C	4E
C1424	A	C	5D
C1425	A	D	3B
C1426	B	C	4C
C1427	B	C	4C
C1428	B	C	3C
C1429	B	C	3C
C1430	B	C	3D
C1431	B	C	3D
C1432	A	D	3E
C1433	B	C	4D
C1434	A	D	4B
C1435	A	D	5E
C1436	B	C	4D
C1437	B	C	5D
C1438	B	C	4D
C1439	B	C	4D
C1440	B	C	4D
C1441	B	C	4D
C1442	A	C	5D
C1443	B	C	5C
C1444	A	D	5C
C1445	B	C	4C
C1446	A	C	4C
C1447	A	C	4C
C1448	A	C	4C
C1449	A	D	2B
C1450	B	C	2D
C1451	B	C	1E
C1452	B	C	2C
C1453	B	C	2B
C1454	A	C	6B
C1455	B	C	5B
C1456	B	C	5B
C1457	B	C	5B
C1458	A	C	5C
C1459	A	C	6E
C1460	A	C	6E
C1461	A	C	6D
C1462	A	C	6C
C1463	A	C	6C
C1464	A	C	6C
C1465	A	C	6C
C1466	B	C	6A
C1467	A	C	5B
C1468	A	C	5B
C1469	A	C	5B
C1470	A	C	5B
C1471	A	C	5B
C1472	A	C	5B
C1473	A	C	4B
C1474	A	C	4D
CONNECTOR			
CN1001	A	D	6A
CN1002	A	D	9A
CN1003	A	D	12E
CN1004	A	D	7E
CN1005	A	D	11E
DIODE			
D1002	A	D	7B
D1003	A	D	7B
D1004	A	D	8B
D1006	A	D	8C
D1401	A	D	6B
D1402	A	D	3E
IC			
IC1001	B	C	10D
IC1002	A	C	12C
IC1006	A	C	7C
IC1007	A	C	8D
IC1401	A	C	4D
IC1402	A	C	2D
IC1403	A	C	2C
COIL			
L1001	A	D	9B
L1002	A	D	11B
L1003	A	D	11D
L1004	A	D	11D
L1006	A	D	12D
L1008	A	D	7B
L1011	A	D	9E
L1012	A	D	8C
L1013	A	D	8B
L1014	A	D	8A
L1015	A	D	9A
L1401	A	D	6D
L1402	A	D	6C
L1404	A	D	5E
L1405	A	D	5E
L1406	A	D	4E
L1407	A	D	4B
L1408	A	D	5B
L1409	A	D	5B
L1410	A	D	3B
L1411	A	D	6C
TRANSISTOR			
Q1001	A	C	11D
Q1004	A	C	8B
Q1005	B	C	7B
Q1006	B	C	7D
Q1007	A	C	7D
Q1008	A	C	8E
Q1009	A	C	8E
Q1010	B	C	8E
Q1012	B	C	7E
Q1014	B	C	7D
Q1015	A	C	7E
Q1016	A	C	10C
Q1018	B	C	11B
Q1019	B	C	11B
Q1020	B	C	10B
Q1021	A	C	9D
Q1022	A	C	7E
Q1023	B	C	7B
Q1401	A	D	6B
Q1402	B	C	6D
Q1403	A	C	6D
Q1404	A	C	5D
Q1405	B	C	6E
Q1406	B	C	4D
Q1407	A	C	5E
Q1408	A	C	4D
Q1409	A	C	6B
Q1410	A	C	5B
Q1411	A	C	5C
Q1412	B	C	5B
Q1413	A	C	6D
Q1414	B	C	4D
Q1416	B	C	5D
Q1417	A	C	4D
Q1418	A	C	4E
Q1419	A	C	4D
RESISTOR			
R1001	B	C	11C
R1002	A	C	10C
R1003	A	C	10D
R1004	B	C	11D
R1005	B	C	10C
R1006	A	C	10B
R1007	B	C	10E
R1008	A	C	10B
R1009	A	C	9C
R1010	B	C	12C
R1011	B	C	12C
R1012	A	C	12C
R1013	A	C	13C
R1014	A	C	13C
R1015	A	C	13C
R1016	A	C	12B
R1017	A	C	13B
R1018	A	C	13B
R1019	A	C	12B
R1020	B	C	13B
R1021	B	C	12B
R1023	A	C	8C
R1024	B	C	7C
R1025	A	C	7D
R1026	B	C	7D
R1027	A	C	7D
R1028	A	C	7D
R1029	A	C	7D
R1030	A	C	7D
R1031	B	C	7D
R1032	B	C	8C
R1035	B	C	8E
R1036	A	C	9E
R1037	A	C	7A
R1038	A	C	9C
R1039	A	C	9C
R1045	A	C	8D
R1046	A	C	8D
R1047	B	C	8D
R1048	A	C	8D
R1049	B	C	10B
R1052	B	C	10C
R1053	B	C	7C
R1054	A	C	7D
R1055	B	C	8E
R1056	B	C	8D
R1058	B	C	8D
R1059	B	C	8E
R1060	B	C	8E
R1063	A	C	7B
R1064	B	C	7C
R1065	A	C	7E
R1066	A	C	7D
R1067	A	C	7E
R1068	B	C	7D
R1069	B	C	7D
R1070	A	C	10D
R1071	B	C	11B
R1072	A	C	7D
R1073	B	C	7A
R1401	B	C	6B
R1402	B	C	6B
R1403	B	C	6D
R1404	A	C	6D
R1405	B	C	6D
R1406	A	C	6D
R1407	A	C	6D
R1408	B	C	5D
R1409	A	C	6D
R1410	A	C	5D
R1411	A	C	5D
R1412	B	C	5D
R1413	A	C	5D
R1414	B	C	6E
R1415	B	C	6E
R1416	B	C	5D
R1417	B	C	4D
R1418	B	C	4D
R1419	A	C	4D
R1420	A	C	5E
R1421	A	C	4E
R1422	A	C	4E
R1423	A	C	4D
R1424	A	C	5B
R1425	B	C	6B
R1426	A	C	3B
R1427	B	C	3C
R1428	B	C	3C
R1429	B	C	3C
R1430	B	C	3E
R1431	B	C	3D
R1432	B	C	3D
R1433	B	C	3D
R1434	B	C	3D
R1435	B	C	4D
R1436	B	C	5C
R1437	B	C	5D
R1438	B	C	5B
R1439	B	C	5D
R1440	B	C	5D
R1442	A	C	5D
R1443	A	C	5C
R1444	A	C	6B
R1445	A	C	5B
R1446	A	C	5B
R1447	A	C	5C
R1448	A	C	4C
R1449	A	C	5C
R1450	B	C	6C
R1451	B	C	6C
R1452	B	C	6C
R1453	B	C	5B
R1454	B	C	5B
R1455	B	C	5B
R1456	B	C	5B
R1457	B	C	5B
R1458	B	C	4B
R1459	B	C	4B
R1460	A	C	5B
R1461	A	C	6D
R1462	B	C	4D
R1463	B	C	6B
R1464	B	C	5C
R1465	A	C	6E
R1467	A	C	6E
R1468	B	C	4D
R1470	A	C	4E
R1471	A	C	4E
R1472	A	C	4E
R1473	A	C	4E
OTHER			
LC1401	A	D	6B
LC1402	A	D	6C
RA1401	A	C	3C
RA1402	A	C	3C
RA1403	A	C	3D
RA1404	A	C	3D
RA1405	A	C	1E
RA1406	A	C	2E
RA1407	A	C	2B
RA1408	A	C	1B
TP1001	A	D	7E
VR1001	A	D	10B
VR1002	A	D	8E
VR1004	A	D	11B
VR1401	A	D	5C

WAVEFORMS

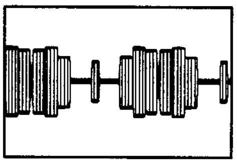
— VIDEO —

WF1 CN1003-7



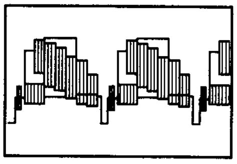
REC 1.0 Vp-p
50 mV/20 µsec/DIV

WF2 CN1003-5



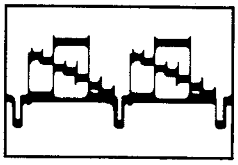
REC 0.68 Vp-p
20 mV/10 µsec/DIV

WF3 IC1001-50



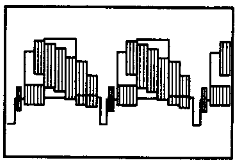
REC 1.0 Vp-p
50 mV/20 µsec/DIV

WF4 IC1001-46



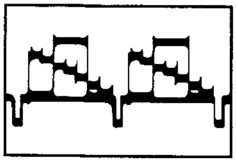
REC 1.0 Vp-p
50 mV/20 µsec/DIV

WF5 IC1001-39



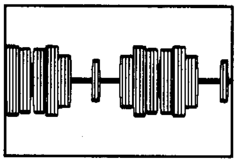
REC 1.8 Vp-p
50 mV/20 µsec/DIV

WF6 IC1001-37



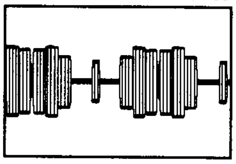
REC 0.8 Vp-p
20 mV/20 µsec/DIV

WF7 IC1001-35



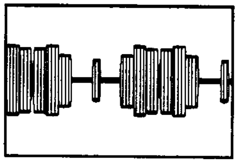
REC 0.7 Vp-p
20 mV/10 µsec/DIV

WF8-1 IC1001-33



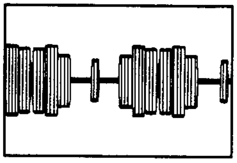
REC 0.34 Vp-p
10 mV/10 µsec/DIV

WF8-2 IC1001-33



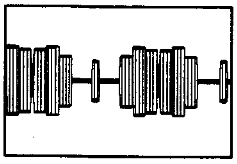
PB 0.42 Vp-p
10 mV/10 µsec/DIV

WF9 IC1001-28



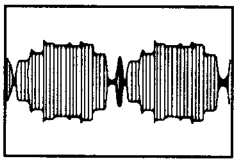
REC 0.68 Vp-p
20 mV/10 µsec/DIV

WF10-1 IC1001-26



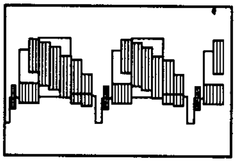
REC 1.4 Vp-p
50 mV/10 µsec/DIV

WF10-2 IC1001-26



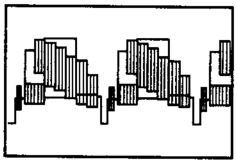
PB 1.2 Vp-p
20 mV/10 µsec/DIV

WF11 IC1001-25



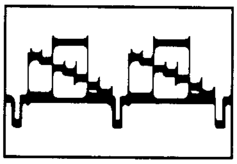
REC/PB 2.1 Vp-p
50 mV/20 µsec/DIV

WF12 IC1001-23



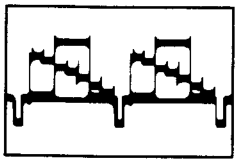
REC/PB 2.1 Vp-p
50 mV/20 µsec/DIV

WF13 IC1001-21



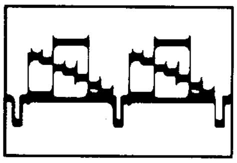
REC/PB 2.1 Vp-p
50 mV/20 µsec/DIV

WF14 IC1001-5



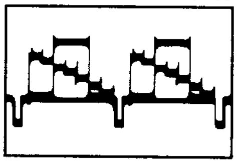
PB 0.54 Vp-p
20 mV/20 µsec/DIV

WF15-1 IC1001-56



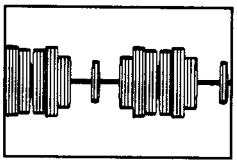
REC 0.5 Vp-p
20 mV/20 µsec/DIV

WF15-2 IC1001-56



PB 0.58 Vp-p
20 mV/20 µsec/DIV

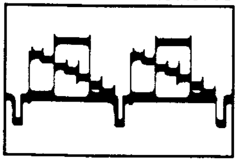
WF16 CN1001-22



PB 0.58 Vp-p
10 mV/10 µsec/DIV

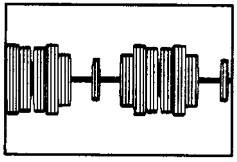
— Y/C SEP —

WF1 IC1401-73



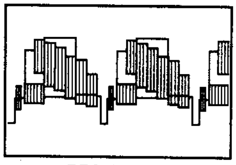
REC 0.9 Vp-p
20 mV/20 µsec/DIV

WF2 IC1401-75



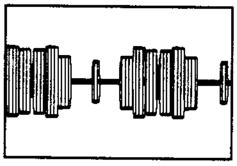
REC/PB 1.0 Vp-p
20 mV/10 µsec/DIV

WF3 IC1401-82



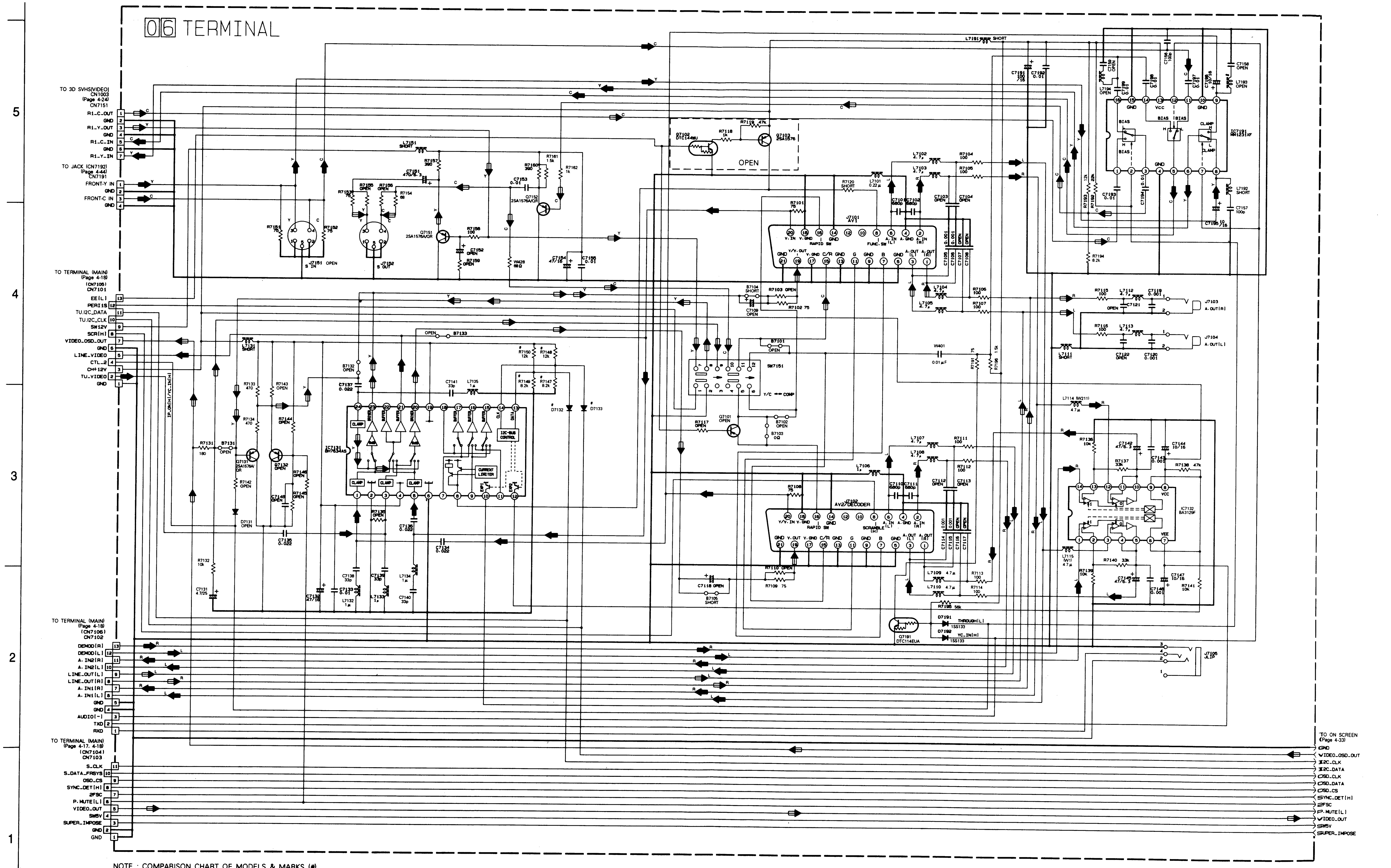
REC 1.9 Vp-p
50 mV/20 µsec/DIV

WF4 IC1401-87



PB 1.4 Vp-p
50 mV/10 µsec/DIV

4.13 TERMINAL SCHEMATIC DIAGRAM

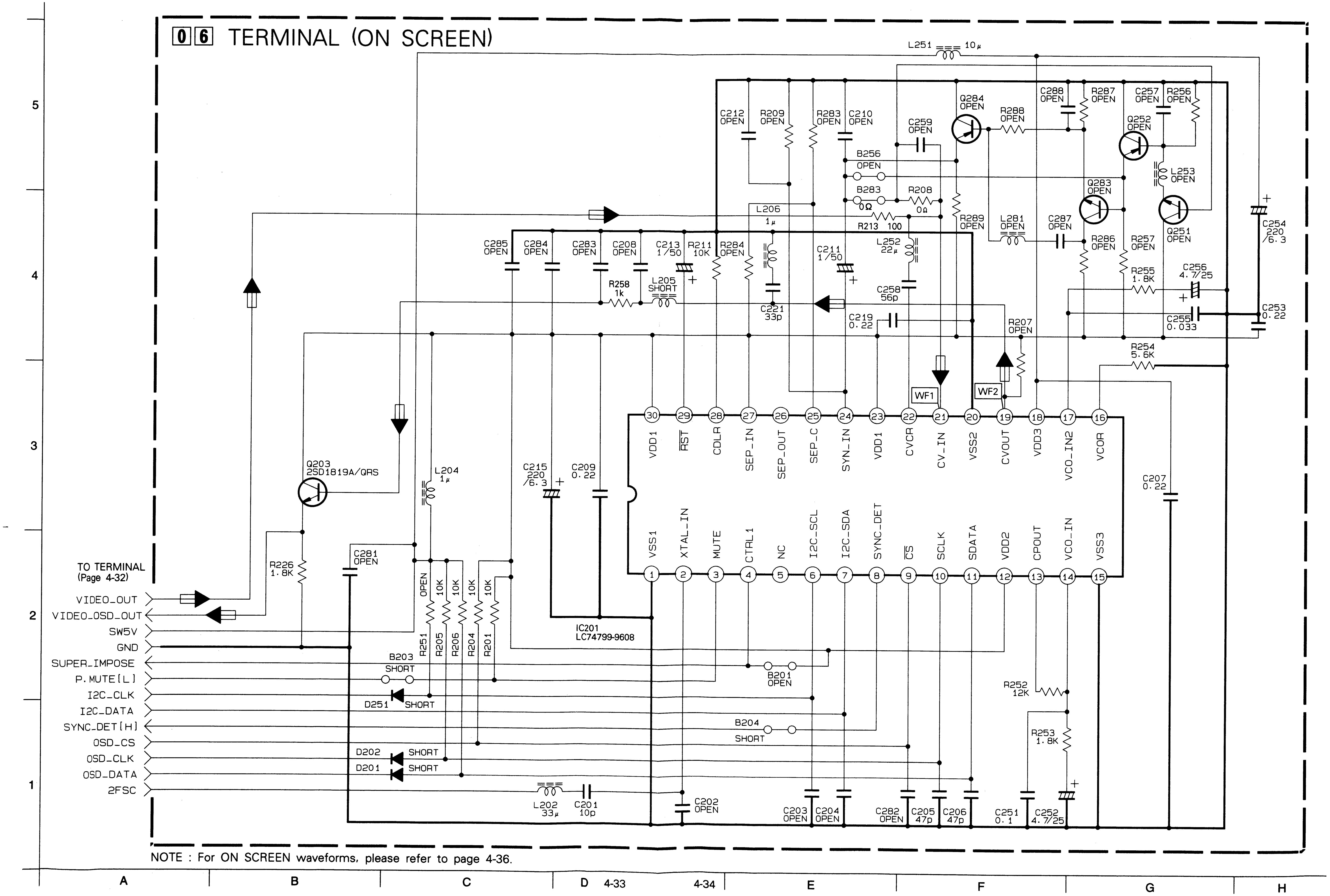

06 TERMINAL
TO 3D SVHS(VIDEO) CN1003 (Page 4-24) CN7151
R1_C_OUT
GND
R1_Y_OUT
GND
R1_C_IN
GND
R1_Y_IN
TO JACK (CN7192) (Page 4-44) CN7191
FRONT-Y IN
GND
FRONT-C IN
GND
TO TERMINAL (MAIN) (Page 4-18) (CN7105) CN7101
EE(L)
PERI1S
TU.I2C_DATA
TU.I2C_CLK
SW12V
SCR(H)
VIDEO_OSD_OUT
GND
LINE_VIDEO
CTL_2
CH+12V
TU_VIDEO
GND
TO TERMINAL (MAIN) (Page 4-18) (CN7106) CN7102
DEMOD(R)
DEMOD(L)
A.IN2(R)
A.IN2(L)
LINE_OUT(L)
LINE_OUT(R)
A.IN1(R)
A.IN1(L)
GND
GND
AUDIO(-)
TXD
RXD
TO TERMINAL (MAIN) (Page 4-17, 4-18) (CN7104) CN7103
S_CLK
S_DATA_FRSYS
OSD_CS
SYNC_DET(H)
2FSC
P.MUTE(L)
VIDEO_OUT
SW5V
SUPER_IMPOSE
GND
GND
TO ON SCREEN (Page 4-33)
GND
VIDEO_OSD_OUT
I2C_CLK
I2C_DATA
OSD_CLK
OSD_DATA
OSD_CS
SYNC_DET(H)
2FSC
P.MUTE(L)
VIDEO_OUT
SW5V
SUPER_IMPOSE
J7151 S IN
J7152 S OUT
Q7151 2SA1576A/QR
Q7152 2SA1576A/QR
IC7131 BH7634AS
CLAMP
BUFFER
CURRENT LIMITER
I2C-BUS CONTROL
Q7131 2SA1576A/QR
Q7132 OPEN
Q7102 DTC144EU
Q7103 2SA1576
OPEN
J7101 AV1
FUNC. SW
RAPID SW
SW7151
Y/C ⇔ COMP
Q7101 OPEN
J7102 AV2/DECODER
SCRAMBLE (H)
IC7191 NJM2231XF
BIAS
CLAMP
J7103 A.OUT(R)
J7104 A.OUT(L)
IC7132 BA3129F
J7105 JLIP
Q7191 DTC114EUA
D7191 1SS133 THROUGH(L)
D7192 1SS133 YC_IN(H)
L7191 SHORT
W401 0.01μF
5
4
3
2
1

NOTE : COMPARISON CHART OF MODELS & MARKS (#).

	REF.NO.	D7132, D7133	R7147-R7150
MODEL	HR-S9500E	1SS133	USED
	HR-S9500EH	SHORT	NOT USED

A
B
C
D
E
F
G
H

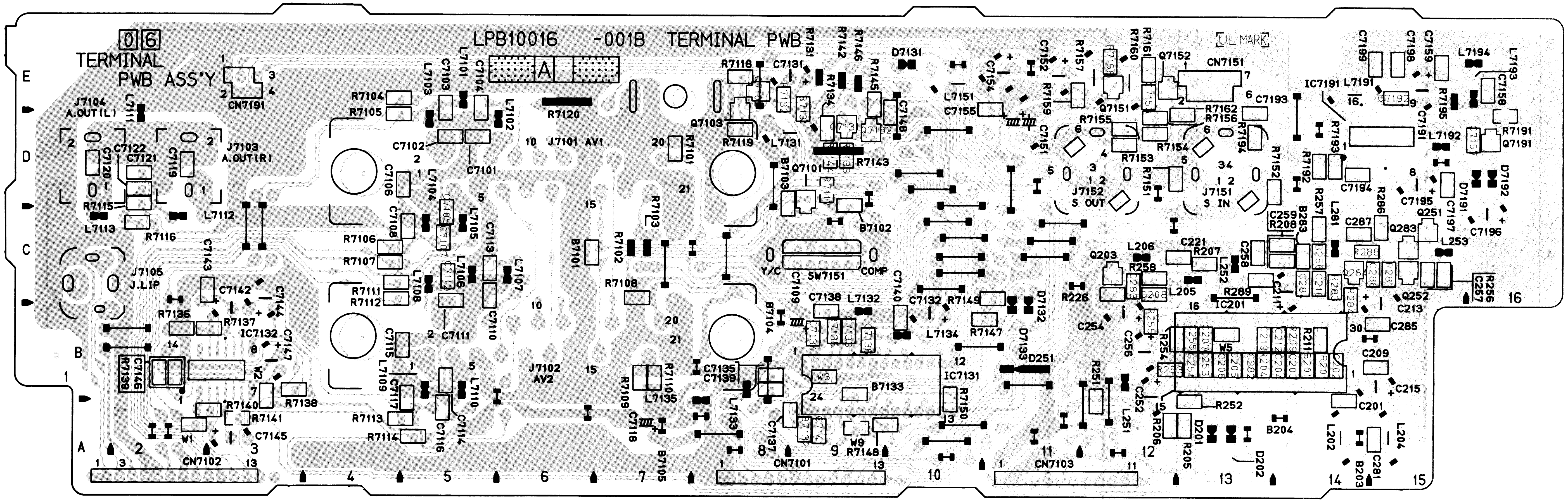
4.14 ON SCREEN SCHEMATIC DIAGRAM



06 TERMINAL (ON SCREEN)
L251 10μ
C212 OPEN
R209 OPEN
R283 OPEN
C210 OPEN
C259 OPEN
Q284 OPEN
R288 OPEN
C288 OPEN
R287 OPEN
C257 OPEN
R256 OPEN
Q252 OPEN
B256 OPEN
L253 OPEN
B283 0Ω
R208 0Ω
Q283 OPEN
L206 1μ
R213 100
R289 OPEN
L281 OPEN
C287 OPEN
R286 OPEN
R257 OPEN
Q251 OPEN
C254 220 /6.3
C285 OPEN
C284 OPEN
C283 OPEN
C208 OPEN
C213 1/50
R211 10K
R284 OPEN
C211 1/50
L252 22μ
R255 1.8K
C256 4.7/25
R258 1k
L205 SHORT
C221 33p
C258 56p
C253 0.22
C219 0.22
C255 0.033
R207 OPEN
R254 5.6K
WF1
WF2
VDD1
RST
CDLR
SEP_IN
SEP_OUT
SEP_C
SYN_IN
VDD1
CVCR
CV_IN
VSS2
CVOUT
VDD3
VCO_IN2
VCOR
VSS1
XTAL_IN
MUTE
CTRL1
NC
I2C_SCL
I2C_SDA
SYNC_DET
CS
SCLK
SDATA
VDD2
CPOUT
VCO_IN
VSS3
Q203 2SD1819A/QRS
L204 1μ
C215 220 /6.3
C209 0.22
C207 0.22
R226 1.8K
C281 OPEN
OPEN
10K
10K
10K
10K
R251
R205
R206
R204
R201
IC201 LC74799-9608
TO TERMINAL (Page 4-32)
VIDEO_OUT
VIDEO_OSD_OUT
SW5V
GND
SUPER_IMPOSE
P.MUTE[L]
I2C_CLK
I2C_DATA
SYNC_DET[H]
OSD_CS
OSD_CLK
OSD_DATA
2FSC
B203 SHORT
D251 SHORT
B201 OPEN
B204 SHORT
D202 SHORT
D201 SHORT
R252 12K
R253 1.8K
L202 33μ
C201 10p
C202 OPEN
C203 OPEN
C204 OPEN
C282 OPEN
C205 47p
C206 47p
C251 0.1
C252 4.7/25
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : For ON SCREEN waveforms, please refer to page 4-36.

4.15 TERMINAL CIRCUIT BOARD AND WAVEFORMS


06
TERMINAL PWB ASS'Y
LPB10016 -001B TERMINAL PWB
UL MARK
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
J7104 A.OUT(L)
J7103 A.OUT(R)
J7105 J.LIP
J7101 AV1
J7102 AV2
J7152 S OUT
J7151 S IN
CN7191
CN7102
CN7101
CN7103
CN7151
SW7151
Y/C
COMP
IC7131
IC7132
IC7191
IC201
Q7103
Q7101
Q7151
Q7152
Q7191
Q203
Q251
Q252
Q283
B7101
B7102
B7103
B7104
B7105
B7133
B203
B204
B283
D7131
D7132
D7133
D251
D201
D202
D7191
D7192
W1
W2
W3
W5
W9
R7120
R7115
R7116
R7136
R7137
R7138
R7139
R7140
R7141
R7104
R7105
R7106
R7107
R7111
R7112
R7113
R7114
R7108
R7118
R7119
R7143
R7147
R7148
R7149
R7150
R7153
R7154
R7155
R7156
R7162
R7191
R252
R226
R289
C7101
C7102
C7111
C7131
C7132
C7135
C7138
C7139
C7142
C7145
C7155
C7193
C7194
C7195
C7196
C201
C209
C213
C215
C221
C254
C285
C287
L7112
L7113
L7131
L7132
L7134
L7135
L7151
L7191
L7192
L7194
L206
L205
L253
L281
L204
L202

COMPONENT PARTS LOCATION GUIDE <TERMINAL>

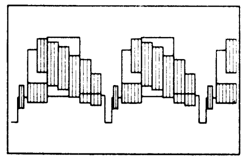
REF.NO.	LOCATION		
CAPACITOR			
C201	B	C	14B
C202	B	C	14B
C203	B	C	14B
C204	B	C	14B
C205	B	C	13B
C206	B	C	13B
C207	B	C	13B
C208	B	C	12C
C209	B	C	15B
C210	B	C	14C
C211	A	D	14C
C212	B	C	14B
C213	A	D	15C
C215	A	D	15B
C219	B	C	13B
C221	B	C	13C
C251	B	C	13B
C252	A	D	12B
C253	B	C	13B
C254	A	D	12B
C255	B	C	13B
C256	A	D	12B
C257	B	C	15C
C258	B	C	13C
C259	B	C	14C
C281	B	C	15A
C282	B	C	13B
C283	B	C	12C
C284	B	C	14C
C285	B	C	15B
C287	B	C	14C
C288	B	C	15C
C7101	B	C	5D
C7102	B	C	5D
C7103	B	C	5E
C7104	B	C	5E
C7105	B	C	5C
C7106	B	C	5D
C7107	B	C	5C
C7108	B	C	5C
C7109	A	D	9B
C7110	B	C	5C
C7111	B	C	5C
C7112	B	C	5C
C7113	B	C	5C
C7114	B	C	5B
C7115	B	C	5B
C7116	B	C	5A
C7117	B	C	5B
C7118	A	D	7A
C7119	B	C	2D
C7120	B	C	1D
C7121	B	C	2D
C7122	B	C	2D
C7131	A	D	9E
C7132	A	D	10B
C7133	B	C	9B
C7134	B	C	9B
C7135	B	C	8B
C7136	B	C	9B
C7137	B	C	9A
C7138	B	C	9B
C7139	B	C	8B
C7140	B	C	10B
C7141	B	C	9A
C7142	A	D	3B
C7143	B	C	3C
C7144	A	D	3B
C7145	A	D	3A
C7146	B	C	2B
C7147	A	D	3B
C7148	B	C	10E
C7151	A	D	11E
C7152	A	D	11E
C7153	B	C	12E
C7154	A	D	11E
C7155	B	C	11E
C7157	B	C	16D
C7158	B	C	16E
C7159	B	C	15E
C7191	A	D	15E
C7192	B	C	15E
C7193	B	C	13E
C7194	B	C	14D
C7195	A	D	15D
C7196	A	D	16C
C7197	B	C	15D
C7198	B	C	15E
C7199	B	C	15E
CONNECTOR			
CN7101	A	D	8A
CN7102	A	D	1A
CN7103	A	D	11A
CN7151	A	D	13E
CN7191	A	D	3E
DIODE			
D201	A	D	13A
D202	A	D	13A
D251	A	D	11B
D7131	A	D	10E
D7132	A	D	11C
D7133	A	D	11C
D7191	A	D	16D
D7192	A	D	16D
IC			
IC201	A	D	14B
IC7131	A	D	9B
IC7132	B	C	3B
IC7191	B	C	15D
JACK			
J7101	A	D	6D
J7102	A	D	6B
J7103	A	D	2D
J7104	A	D	1D
J7105	A	D	1C
J7151	A	D	13D
J7152	A	D	12D
COIL			
L202	A	D	14A
L204	A	D	15A
L205	A	D	13C
L206	A	D	12C
L251	A	D	12B
L252	A	D	13C
L253	A	D	15C
L281	A	D	14C
L7101	A	D	5E
L7102	A	D	6D
L7103	A	D	5D
L7104	A	D	5D
L7105	A	D	5D
L7106	A	D	5C
L7107	A	D	6C
L7108	A	D	5C
L7109	A	D	5B
L7110	A	D	5B
L7111	A	D	2D
L7112	A	D	2C
L7113	A	D	2C
L7131	A	D	9D
L7132	A	D	9B
L7133	A	D	8A
L7134	A	D	10B
L7135	A	D	8B
L7151	A	D	10E
L7191	A	D	15E
L7192	A	D	15D
L7193	A	D	16E
L7194	A	D	16E
TRANSISTOR			
Q203	B	C	12C
Q251	B	C	15C
Q252	B	C	15C
Q283	B	C	15C
Q284	B	C	14C
Q7101	B	C	9D
Q7102	B	C	8E
Q7103	B	C	8E
Q7131	B	C	9D
Q7132	B	C	9D
Q7151	B	C	12E
Q7152	B	C	12E
Q7191	B	C	16D
RESISTOR			
R201	B	C	14B
R204	B	C	13B
R205	B	C	13A
R206	B	C	12A
R207	B	C	13C
R208	B	C	14C
R209	B	C	14B
R211	B	C	14B
R226	B	C	12C
R251	B	C	12B
R252	B	C	13B
R253	B	C	12B
R254	B	C	13B
R255	B	C	12B
R256	B	C	15C
R257	B	C	14C
R258	B	C	12C
R283	B	C	14C
R284	B	C	14C
R286	B	C	15C
R287	B	C	15C
R288	B	C	14C
R289	B	C	13C
R7101	B	C	7D
R7102	A	D	7C
R7103	A	D	7C
R7104	B	C	4E
R7105	B	C	4D
R7106	B	C	4C
R7107	B	C	4C
R7108	B	C	7C
R7109	B	C	7B
R7110	B	C	7B
R7111	B	C	4C
R7112	B	C	4C
R7113	B	C	5A
R7114	B	C	5A
R7115	B	C	2D
R7116	B	C	2C
R7117	B	C	9D
R7118	B	C	8E
R7119	B	C	8D
R7120	A	D	7E
R7131	A	D	9E
R7132	B	C	8E
R7133	B	C	9D
R7134	B	C	9D
R7135	B	C	9B
R7136	B	C	2B
R7137	B	C	3B
R7138	B	C	3B
R7139	B	C	2B
R7140	B	C	3A
R7141	B	C	3A
R7142	A	D	9E
R7143	A	D	9D
R7144	B	C	9D
R7145	B	C	9E
R7146	A	D	9E
R7147	B	C	11B
R7148	B	C	10A
R7149	B	C	11C
R7150	B	C	10B
R7151	B	C	12D
R7152	B	C	14D
R7153	B	C	12D
R7154	B	C	12D
R7155	B	C	12D
R7156	B	C	12D
R7157	A	D	12E
R7158	B	C	12E
R7159	B	C	11E
R7160	A	D	12E
R7161	B	C	12E
R7162	B	C	13D
R7191	B	C	16D
R7192	B	C	14D
R7193	B	C	14D
R7194	B	C	13D
R7195	A	D	15D
SWITCH			
SW7151	A	D	9C

WAVEFORMS

TERMINAL

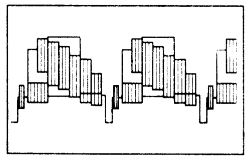
— ON SCREEN —

WF1-1 IC201-21



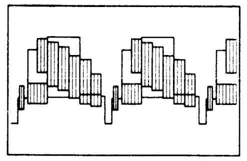
REC 2.15 Vp-p
0.1 V/20 μsec/DIV

WF1-2 IC201-21



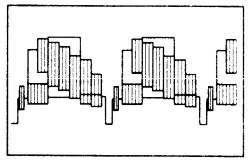
PB 2.3 Vp-p
0.1 V/20 μsec/DIV

WF2-1 IC201-19



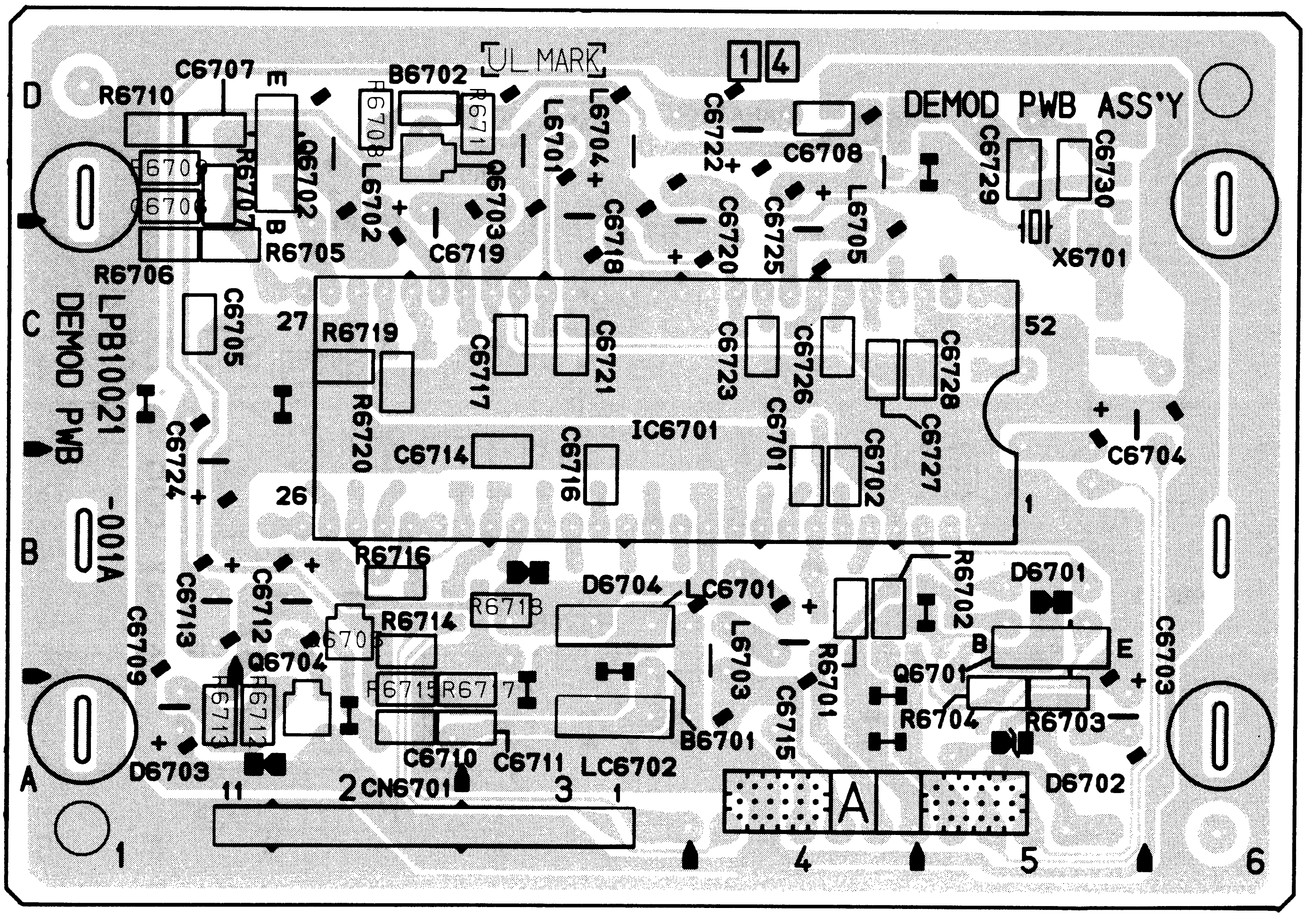
REC 2.15 Vp-p
0.1 V/20 μsec/DIV

WF2-2 IC201-19



PB 2.3 Vp-p
0.1 V/20 μsec/DIV

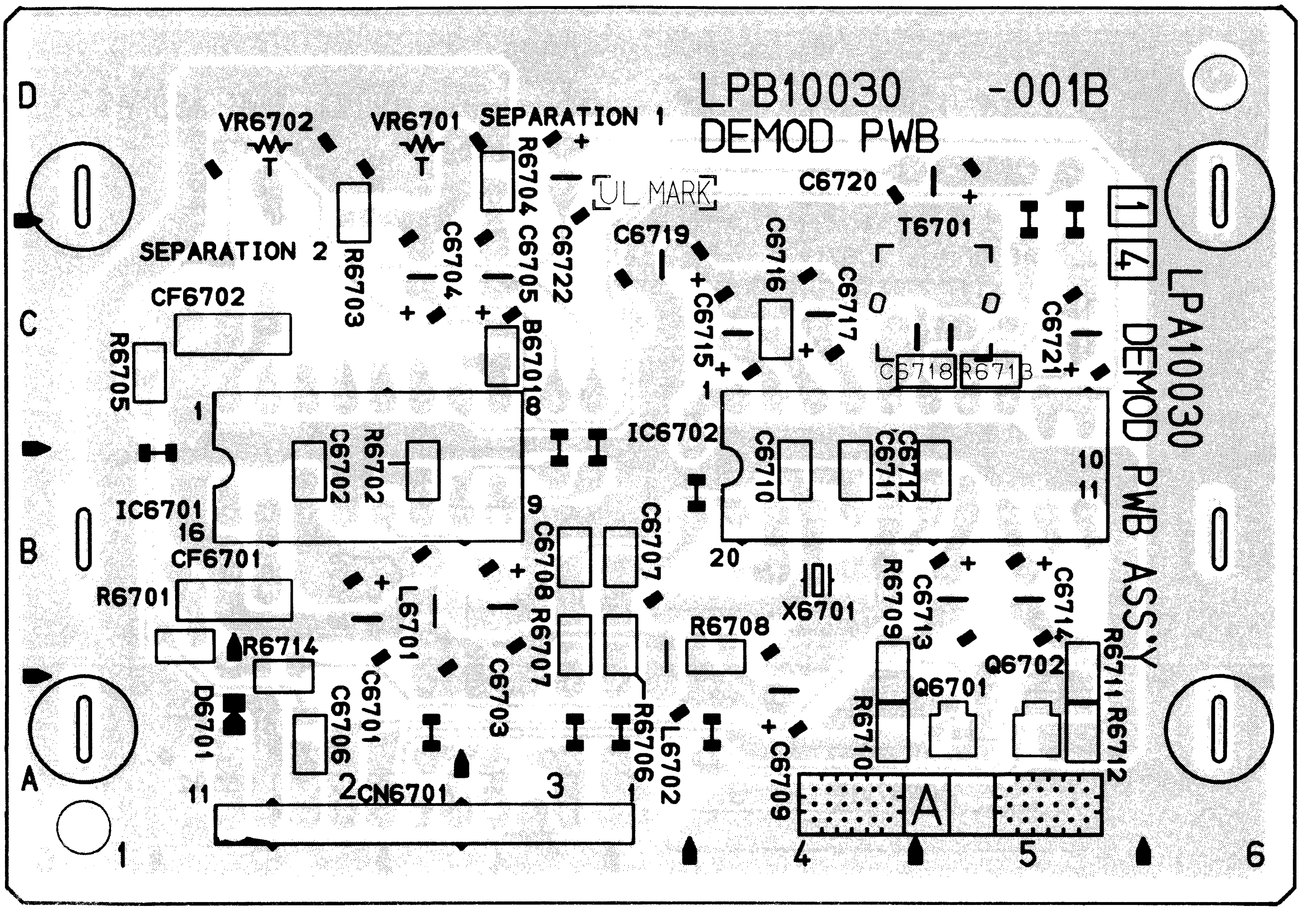
4.17 DEMODULATOR CIRCUIT BOARD [HR-S9500EH]


UL MARK
1 4
DEMOD PWB ASS'Y
D
C
B
A
1
2
3
4
5
6
C6707
R6710
B6702
R6708
R6711
L6701
L6704
C6722
C6708
C6729
C6730
R6709
R6706
R6707
Q6702
L6702
Q6703
C6718
C6720
C6725
L6705
X6701
E
B
R6705
C6719
R6706
LPB10021
DEMOD PWB
-001A
C6705
27
R6719
C6717
C6721
C6723
C6726
C6728
52
R6720
C6714
C6716
IC6701
C6701
C6702
C6727
C6704
C6724
26
1
R6716
D6704
LC6701
R6702
D6701
C6713
C6712
C6709
R6714
R6718
Q6705
Q6704
L6703
R6701
B
E
C6703
Q6701
R6715
R6717
R6712
R6713
R6704
R6703
B6701
C6715
C6710
C6711
LC6702
D6703
D6702
11
2
CN6701
3
1
A

COMPONENT PARTS LOCATION GUIDE <DEMODULATOR>

REF.NO.	LOCATION		
CAPACITOR			
C6701	B	C	4B
C6702	B	C	4B
C6703	A	D	5A
C6704	A	D	5C
C6705	B	C	1C
C6706	B	C	1D
C6707	B	C	1D
C6708	B	C	4D
C6709	A	D	1A
C6710	B	C	2A
C6711	B	C	3A
C6712	A	D	2B
C6713	A	D	1B
C6714	B	C	3C
C6715	A	D	4B
C6716	B	C	3B
C6717	B	C	3C
C6718	A	D	3D
C6719	A	D	2D
C6720	A	D	3C
C6721	B	C	3C
C6722	A	D	4D
C6723	B	C	4C
C6724	A	D	1B
C6725	A	D	4D
C6726	B	C	4C
C6727	B	C	4C
C6728	B	C	5C
C6729	B	C	5D
C6730	B	C	5D
CONNECTOR			
CN6701	A	D	3A
DIODE			
D6701	A	D	5B
D6702	A	D	5A
D6703	A	D	2A
D6704	A	D	3B
IC			
IC6701	A	D	5B
COIL			
L6701	A	D	3D
L6702	A	D	2D
L6703	A	D	4A
L6704	A	D	3D
L6705	A	D	4D
TRANSISTOR			
Q6701	A	D	5B
Q6702	A	D	2D
Q6703	B	C	2D
Q6704	B	C	2A
Q6705	B	C	2B
RESISTOR			
R6701	B	C	4B
R6702	B	C	4B
R6703	B	C	5A
R6704	B	C	5A
R6705	B	C	1C
R6706	B	C	1C
R6707	B	C	1D
R6708	B	C	2D
R6709	B	C	1D
R6710	B	C	1D
R6711	B	C	3D
R6712	B	C	2A
R6713	B	C	1A
R6714	B	C	2B
R6715	B	C	2A
R6716	B	C	2B
R6717	B	C	3A
R6718	B	C	3B
R6719	B	C	2C
R6720	B	C	2C
OTHERS			
LC6701	A	D	3B
LC6702	A	D	3A
X6701	A	D	5D

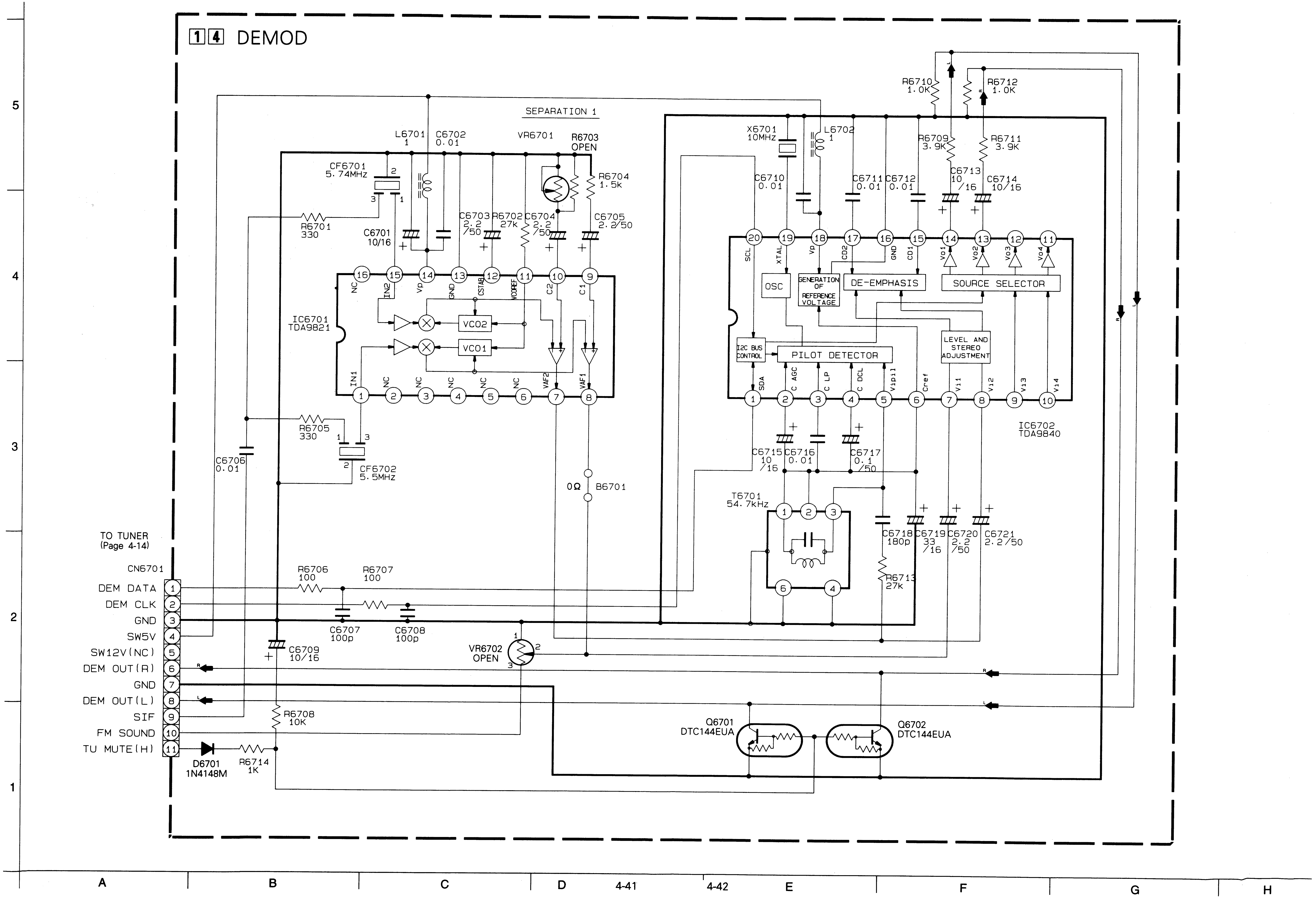
4.18 DEMODULATOR CIRCUIT BOARD [HR-S9500E]


LPB10030 -001B
DEMOD PWB
LPA10030 DEMOD PWB ASS'Y
UL MARK
D
C
B
A
1
4
5
6
VR6702
VR6701
SEPARATION 1
SEPARATION 2
R6704
C6705
C6722
C6720
T6701
C6719
C6716
C6717
C6715
C6721
C6718
R6718
C6704
R6703
CF6702
R6705
R6701
IC6701
IC6702
C6702
R6702
C6710
C6711
C6712
CF6701
R6714
L6701
C6708
R6707
C6707
C6703
C6701
C6706
D6701
R6706
L6702
R6708
X6701
R6709
C6713
C6714
Q6701
Q6702
R6710
R6711
R6712
C6709
CN6701
2
3
16
20
9
10
11

COMPONENT PARTS LOCATION GUIDE < DEMODULATOR >

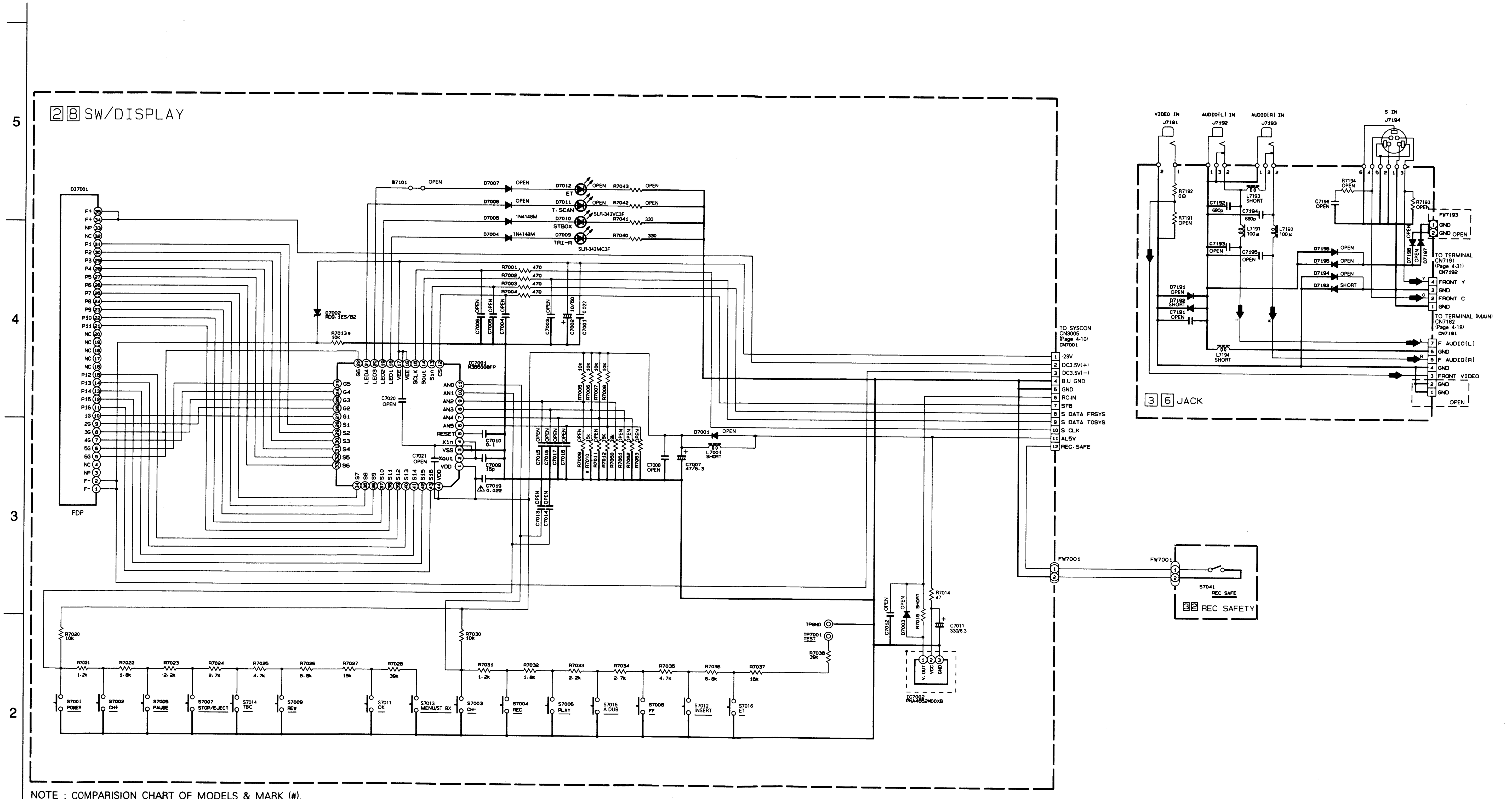
REF.NO.	LOCATION		
CAPACITOR			
C6702	B	C	2B
C6703	A	D	3B
C6704	A	D	2C
C6705	A	D	3C
C6706	B	C	2A
C6707	B	C	3B
C6708	B	C	3B
C6709	A	D	4A
C6710	B	C	4B
C6711	B	C	4B
C6712	B	C	5B
C6713	A	D	5B
C6714	A	D	5B
C6715	A	D	4C
C6716	B	C	4C
C6717	A	D	4C
C6718	B	C	5C
C6719	A	D	4C
C6720	A	D	5D
C6721	A	D	5C
C6722	A	D	3D
CONNECTOR			
CN6701	A	D	3A
DIODE			
D6701	A	D	2A
IC			
IC6701	A	D	2C
IC6702	A	D	4C
COIL			
L6701	A	D	2B
L6702	A	D	3B
TRANSISTOR			
Q6701	B	C	5A
Q6702	B	C	5A
RESISTOR			
R6701	B	C	1B
R6702	B	C	2B
R6703	B	C	2D
R6704	B	C	3D
R6705	B	C	1C
R6706	B	C	3B
R6707	B	C	3B
R6708	B	C	4B
R6709	B	C	4B
R6710	B	C	4A
R6711	B	C	5B
R6712	B	C	5A
R6713	B	C	5C
R6714	B	C	2B
OTHER			
CF6701	A	D	2B
CF6702	A	D	1C
T6701	A	D	5C
VR6701	A	D	2D
VR6702	A	D	2D
X6701	A	D	4B

4.19 DEMODULATOR SCHEMATIC DIAGRAM [HR-S9500E]



14 DEMOD
SEPARATION 1
L6701 1
C6702 0.01
VR6701
R6703 OPEN
CF6701 5.74MHz
R6704 1.5k
C6703 2.2/50
R6702 27k
C6704 2.2/50
C6705 2.2/50
R6701 330
C6701 10/16
IC6701 TDA9821
NC
IN2
Vp
GND
CSTAB
VCOREF
C2
C1
VCO2
VCO1
IN1
VAF2
VAF1
R6705 330
CF6702 5.5MHz
C6706 0.01
0Ω
B6701
X6701 10MHz
L6702 1
C6710 0.01
C6711 0.01
C6712 0.01
R6709 3.9K
R6710 1.0K
R6711 3.9K
R6712 1.0K
C6713 10/16
C6714 10/16
SCL
XTAL
CD2
CD1
Vo1
Vo2
Vo3
Vo4
OSC
GENERATION OF REFERENCE VOLTAGE
DE-EMPHASIS
SOURCE SELECTOR
I2C BUS CONTROL
PILOT DETECTOR
LEVEL AND STEREO ADJUSTMENT
SDA
C AGC
C LP
C DCL
Vipil
Cref
Vi1
Vi2
Vi3
Vi4
IC6702 TDA9840
C6715 10/16
C6716 0.01
C6717 0.1/50
T6701 54.7kHz
C6718 180p
C6719 33/16
C6720 2.2/50
C6721 2.2/50
R6713 27k
TO TUNER (Page 4-14)
CN6701
DEM DATA
DEM CLK
GND
SW5V
SW12V(NC)
DEM OUT(R)
GND
DEM OUT(L)
SIF
FM SOUND
TU MUTE(H)
R6706 100
R6707 100
C6707 100p
C6708 100p
C6709 10/16
VR6702 OPEN
R6708 10K
D6701 1N4148M
R6714 1K
Q6701 DTC144EUA
Q6702 DTC144EUA
R
L
1
2
3
4
5
A
B
C
D
E
F
G
H

4.20 SW/DISPLAY, REC SAFETY AND JACK SCHEMATIC DIAGRAMS

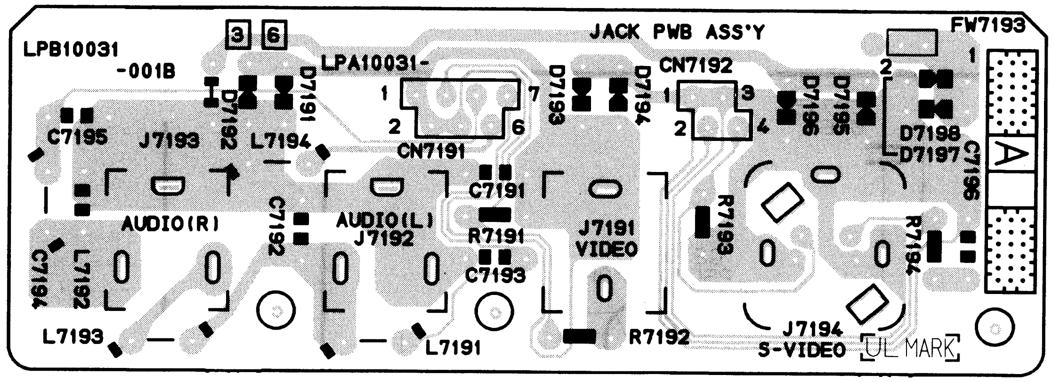

28 SW/DISPLAY
36 JACK
32 REC SAFETY
DI7001
FDP
IC7001
IC7002
TO SYSCON CN3005 (Page 4-10) CN7001
1 -29V
2 DC3.5V(+)
3 DC3.5V(-)
4 B.U GND
5 GND
6 RC-IN
7 STB
8 S DATA FRSYS
9 S DATA TOSYS
10 S CLK
11 AL5V
12 REC. SAFE
FW7001
S7041 REC SAFE
TPGND
TP7001 TEST
S7001 POWER
S7002 CH+
S7006 PAUSE
S7007 STOP/EJECT
S7014 TBC
S7009 REW
S7011 OK
S7013 MENU/ST BX
S7003 CH-
S7004 REC
S7005 PLAY
S7015 A.DUB
S7008 FF
S7012 INSERT
S7016 ET
D7012 ET
D7011 T.SCAN
D7010 STBOX
D7009 TRI-R
VIDEO IN J7191
AUDIO(L) IN J7192
AUDIO(R) IN J7193
S IN J7194
FW7193
TO TERMINAL CN7191 (Page 4-31) CN7192
FRONT Y
FRONT C
TO TERMINAL (MAIN) CN7162 (Page 4-18) CN7191
F AUDIO(L)
F AUDIO(R)
FRONT VIDEO
GND
OPEN
SHORT
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : COMPARISION CHART OF MODELS & MARK (#).

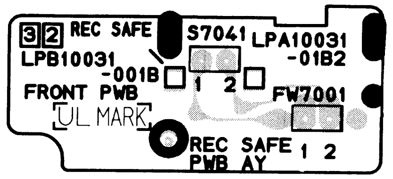
	REF.NO.	R7010
MODEL	HR-S9500E	NOT USED
	HR-S9500EH	USED

4.21 SW/DISPLAY, REC SAFETY AND JACK CIRCUIT BOARDS

— JACK —


LPB10031
-001B
3 6
LPA10031-
JACK PWB ASS'Y
FW7193
CN7192
CN7191
D7191
D7192
D7193
D7194
D7195
D7196
D7197
D7198
C7195
C7196
J7193
L7194
C7191
C7192
C7193
C7194
AUDIO(R)
AUDIO(L)
J7192
R7191
J7191
VIDEO
R7193
R7194
L7192
L7193
L7191
R7192
J7194
S-VIDEO
UL MARK
A

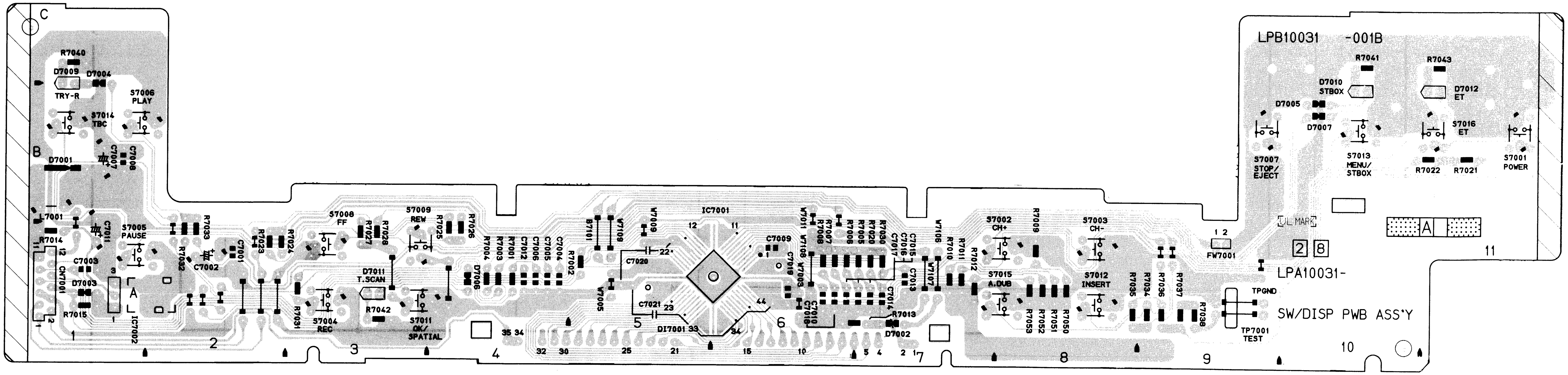
— REC SAFETY —


3 2 REC SAFE
S7041
LPA10031
-01B2
LPB10031
-001B
1 2
FRONT PWB
FW7001
UL MARK
REC SAFE
PWB AY
1 2

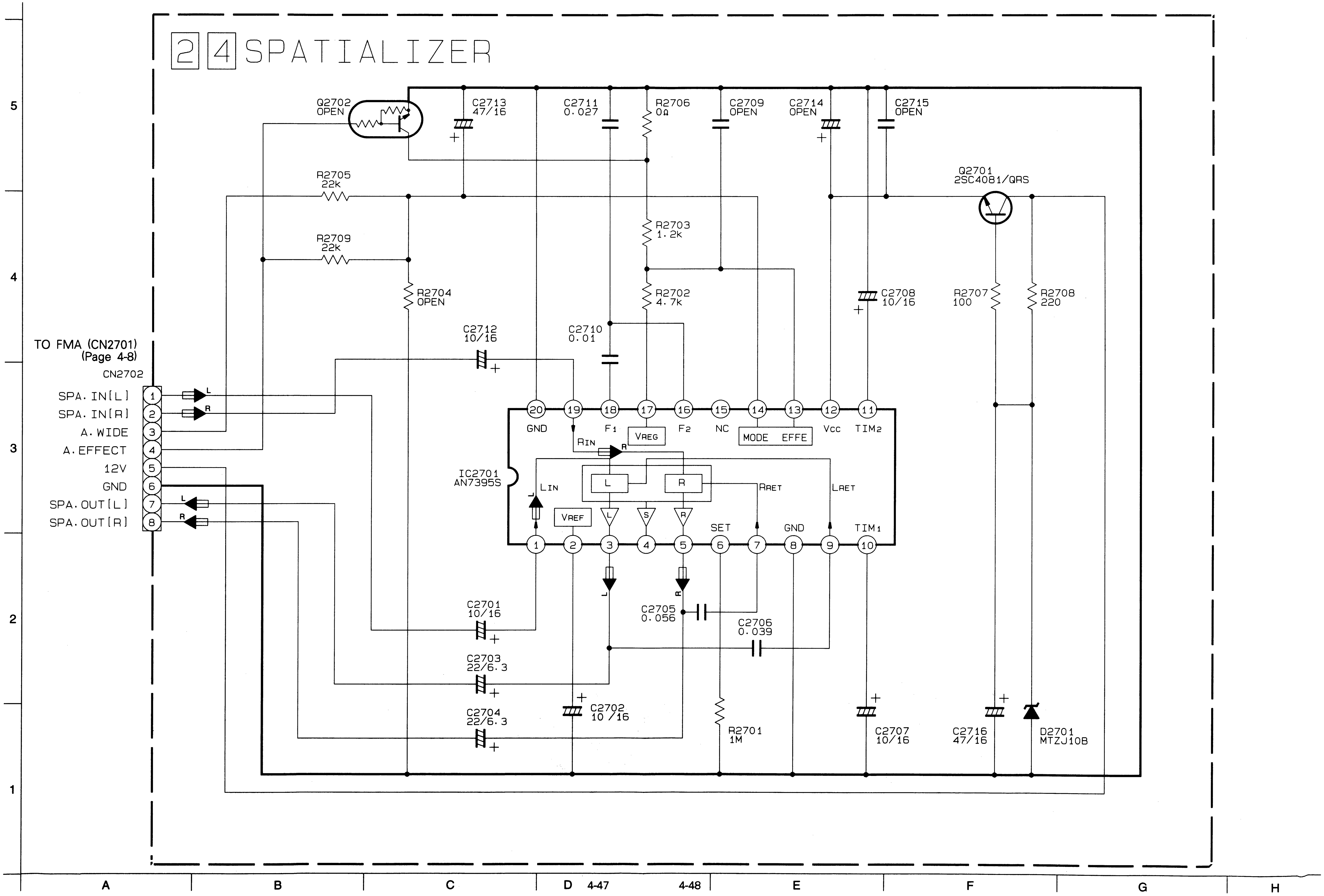
COMPONENT PARTS LOCATION GUIDE (SW/DISPLAY)

REF.NO.	LOCATION		
CAPACITOR			
C7001	A	D	2A
C7002	A	D	2A
C7003	A	D	1A
C7004	A	D	4A
C7005	A	D	4A
C7006	A	D	4A
C7007	A	D	1B
C7008	A	D	1B
C7009	A	D	6A
C7010	A	D	6A
C7011	A	D	1A
C7012	A	D	4A
C7013	A	D	7A
C7014	A	D	7A
C7015	A	D	7A
C7016	A	D	7A
C7017	A	D	6A
C7018	A	D	6A
C7019	A	D	6A
C7020	A	D	5A
C7021	A	D	6A
CONNECTOR			
CN7001	A	D	1A
DIODE			
D7001	A	D	1B
D7002	A	D	7A
D7003	A	D	1A
D7004	A	D	1C
D7005	A	D	10B
D7006	A	D	4A
D7007	A	D	10B
D7009	A	D	1C
D7010	A	D	10C
D7011	A	D	3A
D7012	A	D	11C
IC			
IC7001	B	C	6A
IC7002	A	D	2A
COIL			
L7001	A	D	1B
RESISTOR			
R7001	A	D	4A
R7002	A	D	5A
R7003	A	D	4A
R7004	A	D	4A
R7005	A	D	7A
R7006	A	D	6A
R7007	A	D	6A
R7008	A	D	6A
R7009	A	D	8A
R7010	A	D	7A
R7011	A	D	7A
R7012	A	D	7A
R7013	A	D	7A
R7014	A	D	1A
R7015	A	D	1A
R7020	A	D	7A
R7021	A	D	11B
R7022	A	D	11B
R7023	A	D	2A
R7024	A	D	2A
R7025	A	D	4B
R7026	A	D	4A
R7027	A	D	3B
R7028	A	D	3A
R7030	A	D	7A
R7031	A	D	3A
R7032	A	D	2A
R7033	A	D	2B
R7034	A	D	9A
R7035	A	D	8A
R7036	A	D	9A
R7037	A	D	9A
R7038	A	D	9A
R7040	A	D	1C
R7041	A	D	10C
R7042	A	D	3A
R7043	A	D	11C
R7050	A	D	8A
R7051	A	D	8A
R7052	A	D	8A
R7053	A	D	8A
SWITCH			
S7001	A	D	11B
S7002	A	D	8A
S7003	A	D	8A
S7004	A	D	3A
S7005	A	D	1A
S7006	A	D	1B
S7007	A	D	9B
S7008	A	D	3A
S7009	A	D	3A
S7011	A	D	3A
S7012	A	D	8A
S7013	A	D	10B
S7014	A	D	1B
S7015	A	D	8A
S7016	A	D	11B
S7041	A	D	9B
OTHER			
DI7001	A	D	6A
FW7001	A	D	9A
FW7001	A	D	9B
TP7001	A	D	9A
TPGND	A	D	9A

— SW/DISPLAY —

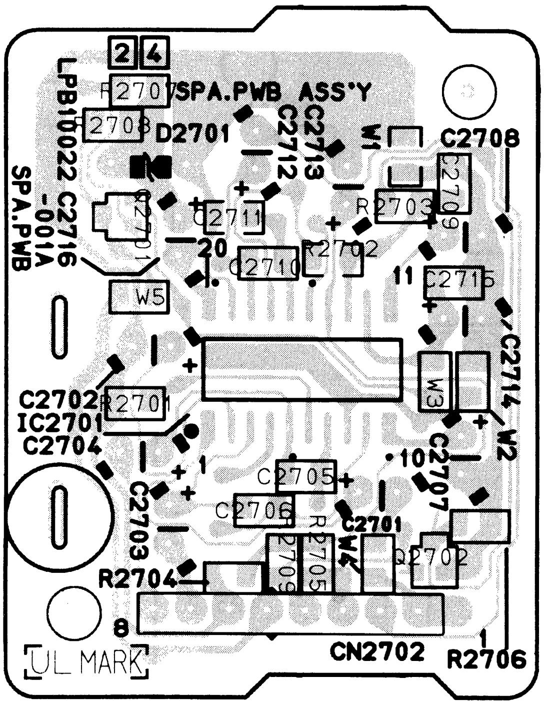

C
B
A
R7040
D7009
D7004
TRY-R
S7006
PLAY
S7014
TBC
D7001
C7007
C7008
L7001
R7014
S7005
PAUSE
C7003
D7003
CN7001
R7015
IC7002
C7011
C7002
C7001
R7033
R7032
R7023
R7024
S7008
FF
R7027
R7028
S7009
REW
R7025
R7026
D7011
T.SCAN
R7042
S7004
REC
S7011
OK/
SPATIAL
D7006
IC7001
C7020
C7021
DI7001
W7001
C7009
C7019
D7002
R7013
S7002
CH+
S7015
A.DUB
R7009
S7003
CH-
S7012
INSERT
R7035
R7034
R7036
R7037
R7038
R7050
R7051
R7052
R7053
FW7001
1 2
LPB10031 -001B
R7041
R7043
D7010
STBOX
D7012
ET
D7005
D7007
S7016
ET
S7007
STOP/
EJECT
S7013
MENU/
STBOX
R7022
R7021
S7001
POWER
UL MARK
2 8
LPA10031-
TPGND
SW/DISP PWB ASS'Y
TP7001
TEST
A
1
2
3
4
5
6
7
8
9
10
11

4.22 SPATIALIZER SCHEMATIC DIAGRAM



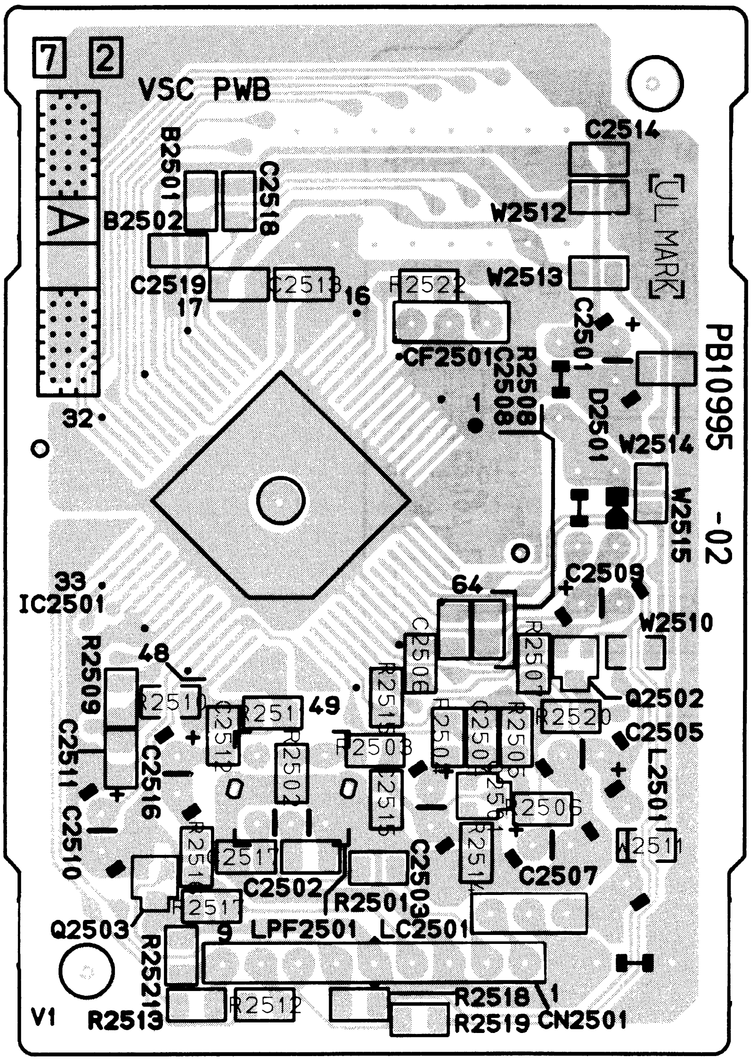
2 4 SPATIALIZER
Q2702 OPEN
C2713 47/16
C2711 0.027
R2706 0Ω
C2709 OPEN
C2714 OPEN
C2715 OPEN
R2705 22k
R2709 22k
R2704 OPEN
R2703 1.2k
R2702 4.7k
C2710 0.01
C2712 10/16
C2708 10/16
Q2701 2SC4081/QRS
R2707 100
R2708 220
TO FMA (CN2701) (Page 4-8)
CN2702
SPA. IN[L]
SPA. IN[R]
A. WIDE
A. EFFECT
12V
GND
SPA. OUT[L]
SPA. OUT[R]
IC2701 AN7395S
GND
F1
VREG
F2
NC
MODE
EFFE
Vcc
TIM2
RIN
LIN
RRET
LRET
VREF
SET
GND
TIM1
L
S
R
C2701 10/16
C2703 22/6.3
C2704 22/6.3
C2702 10/16
C2705 0.056
C2706 0.039
R2701 1M
C2707 10/16
C2716 47/16
D2701 MTZJ10B
1
2
3
4
5
A
B
C
D
E
F
G
H

4.23 SPATIALIZER CIRCUIT BOARD



2
4
R2707
SPA.PWB ASS'Y
R2708
D2701
C2712
C2713
W1
C2708
LPB10022 C2716
-001A
SPA.PWB
Q2701
C2711
R2703
C2709
20
C2710
R2702
11
C2715
W5
C2714
W3
W2
C2702
R2701
IC2701
C2704
1
C2705
10
C2707
C2703
C2706
R2705
C2701
W4
Q2702
R2709
R2704
8
1
CN2702
R2706
UL MARK

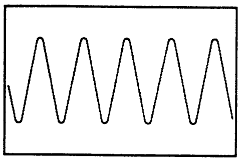
4.24 VSC CIRCUIT BOARD AND WAVEFORMS


7
2
VSC PWB
A
B2501
B2502
C2518
C2519
17
C2513
16
R2522
W2513
W2512
C2514
UL MARK
PB10995 -02
CF2501
C2508
R2508
C2501
D2501
W2514
W2515
1
32
33
IC2501
64
C2509
W2510
48
49
R2509
R2510
C2511
C2512
R2511
C2516
C2510
R2502
R2503
R2515
C2506
R2516
R2507
C2504
C2505
R2505
R2520
Q2502
R2504
R2506
L2501
W2511
R2514
C2517
C2502
R2501
C2503
C2507
Q2503
R2517
R2521
9
LPF2501
LC2501
V1
R2513
R2512
R2518
R2519
CN2501

— WAVEFORMS —

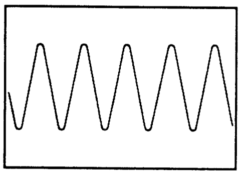
— VSC —

WF1 CN2501-2



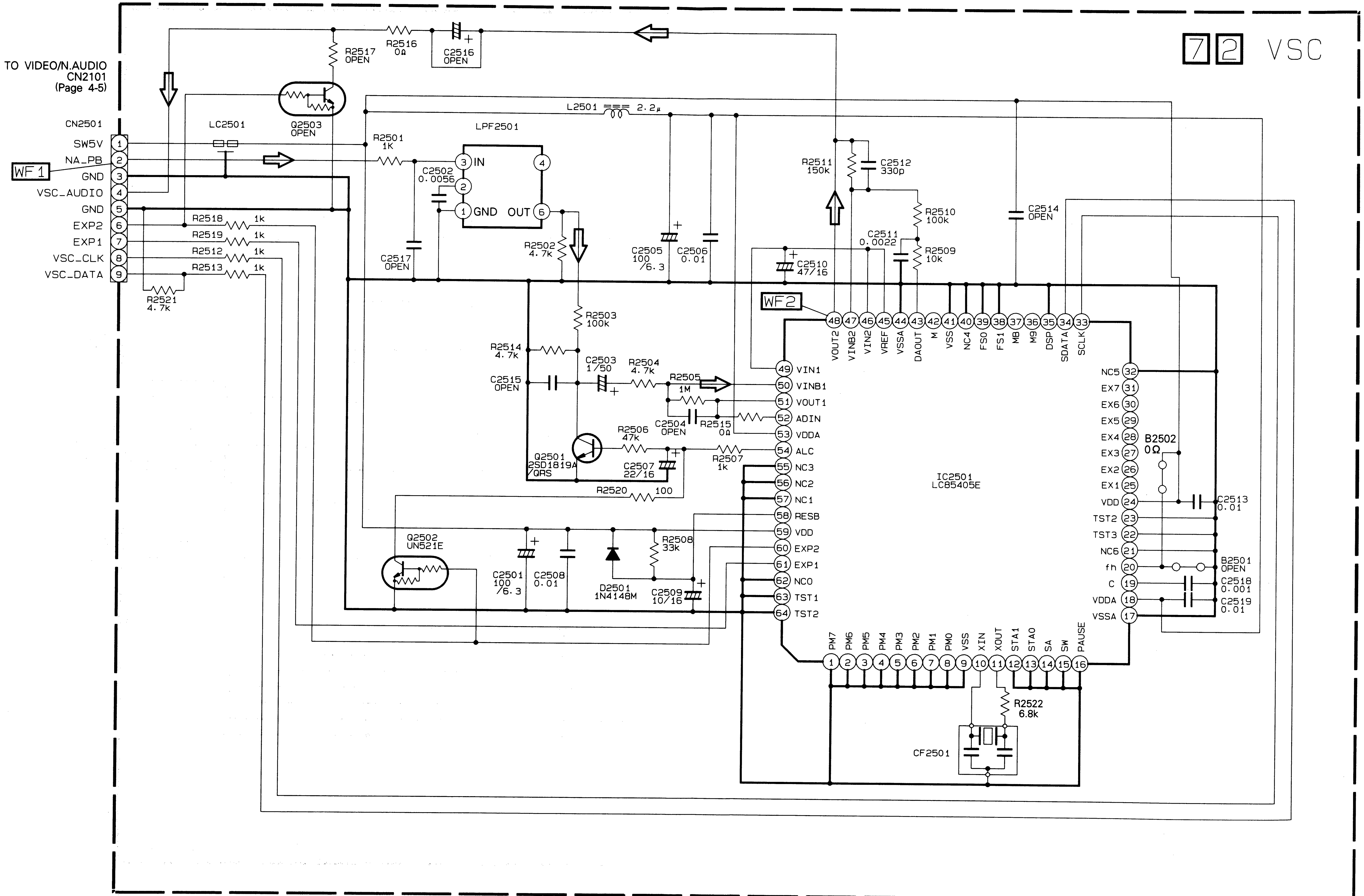
PB 0.68 Vp-p
10 mV/0.5 msec/DIV

WF2 IC2501-48



PB 1.3 Vp-p
50 mV/1 msec/DIV

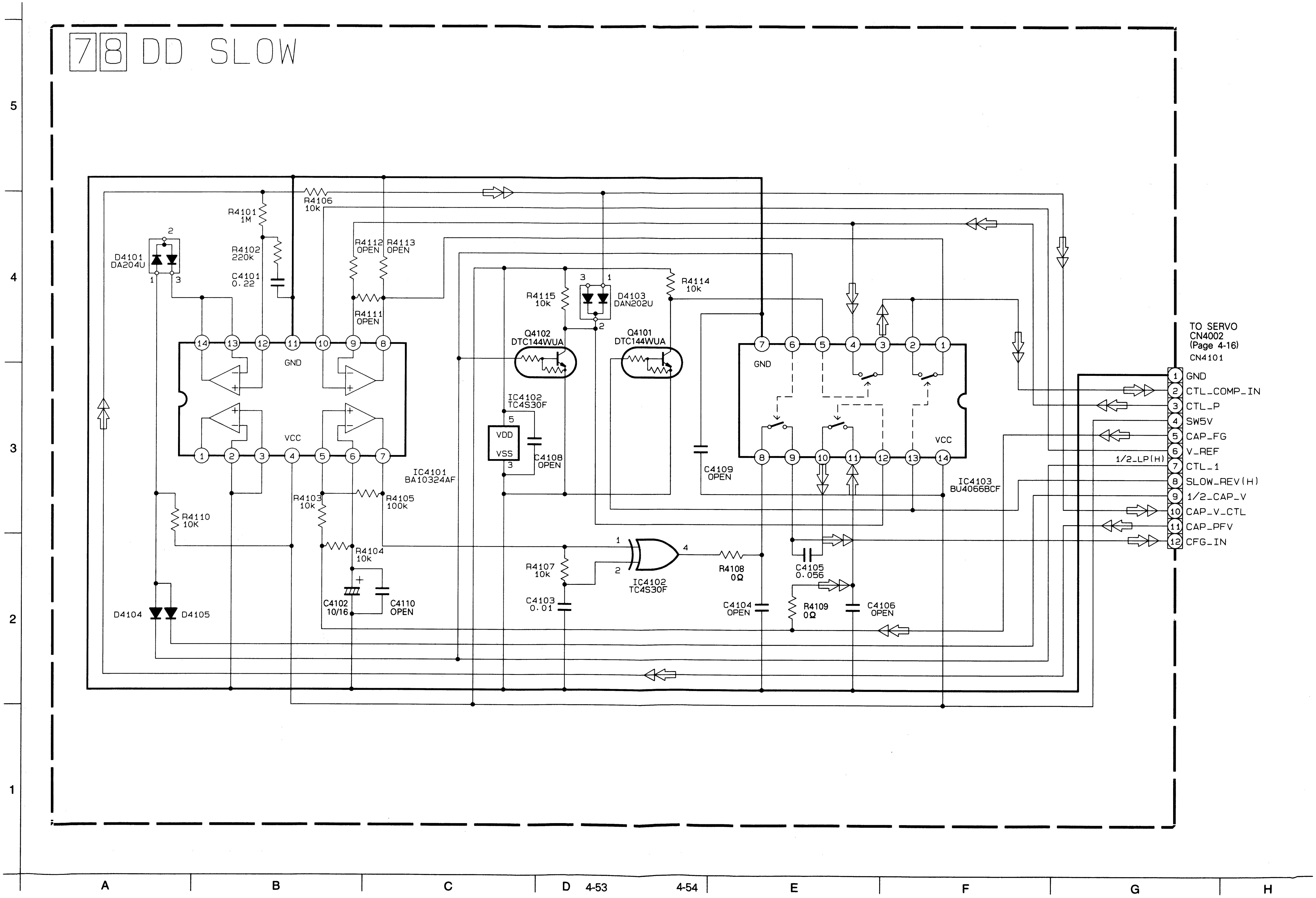
4.25 VSC SCHEMATIC DIAGRAM



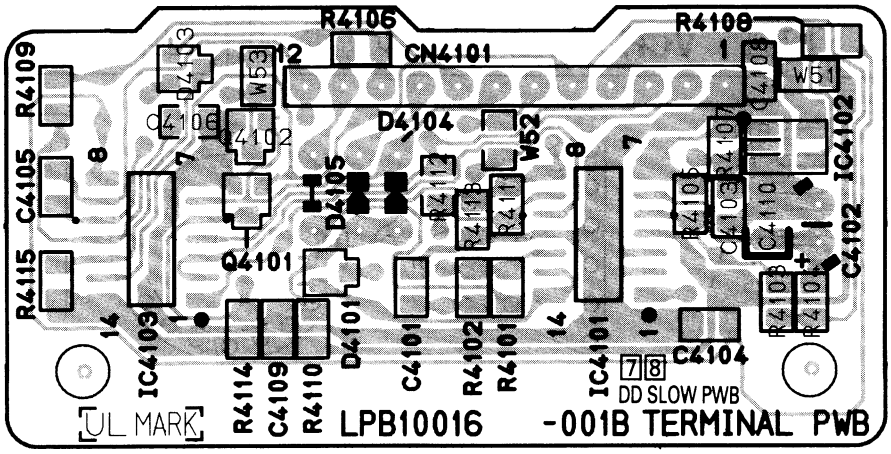
7 2 VSC
TO VIDEO/N.AUDIO
CN2101
(Page 4-5)
CN2501
SW5V 1
NA_PB 2
GND 3
VSC_AUDIO 4
GND 5
EXP2 6
EXP1 7
VSC_CLK 8
VSC_DATA 9
WF1
WF2
LC2501
Q2503 OPEN
R2517 OPEN
R2516 0Ω
C2516 OPEN
R2501 1K
LPF2501
IN 3
2
GND 1
OUT 6
4
C2502 0.0056
C2517 OPEN
R2518 1k
R2519 1k
R2512 1k
R2513 1k
R2521 4.7k
L2501 2.2μ
R2502 4.7k
C2505 100 /6.3
C2506 0.01
R2503 100k
R2514 4.7k
C2515 OPEN
C2503 1/50
R2504 4.7k
R2505 1M
C2504 OPEN
R2515 0Ω
R2506 47k
C2507 22/16
R2507 1k
Q2501 2SD1819A /QRS
R2520 100
Q2502 UN521E
C2501 100 /6.3
C2508 0.01
D2501 1N4148M
R2508 33k
C2509 10/16
R2511 150k
C2512 330p
R2510 100k
C2511 0.0022
R2509 10k
C2510 47/16
C2514 OPEN
IC2501 LC85405E
48 VOUT2
47 VINB2
46 VIN2
45 VREF
44 VSSA
43 DAOUT
42 M
41 VSS
40 NC4
39 FS0
38 FS1
37 MB
36 M9
35 DSP
34 SDATA
33 SCLK
49 VIN1
50 VINB1
51 VOUT1
52 ADIN
53 VDDA
54 ALC
55 NC3
56 NC2
57 NC1
58 RESB
59 VDD
60 EXP2
61 EXP1
62 NC0
63 TST1
64 TST2
NC5 32
EX7 31
EX6 30
EX5 29
EX4 28
EX3 27
EX2 26
EX1 25
VDD 24
TST2 23
TST3 22
NC6 21
fh 20
C 19
VDDA 18
VSSA 17
1 PM7
2 PM6
3 PM5
4 PM4
5 PM3
6 PM2
7 PM1
8 PM0
9 VSS
10 XIN
11 XOUT
12 STA1
13 STA0
14 SA
15 SW
16 PAUSE
B2502 0Ω
C2513 0.01
B2501 OPEN
C2518 0.001
C2519 0.01
R2522 6.8k
CF2501

NOTE : For VSC waveforms, please refer to page 4-50.

4.26 DD SLOW SCHEMATIC DIAGRAM

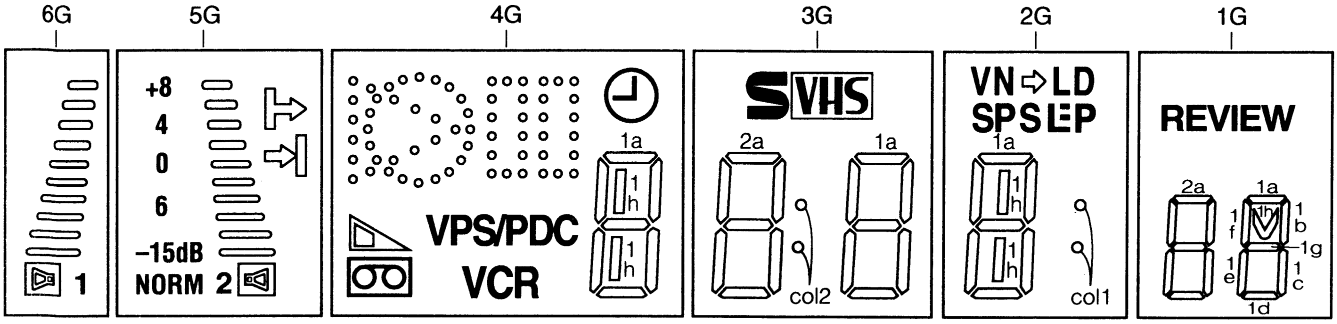

78 DD SLOW
R4106 10k
R4101 1M
R4102 220k
C4101 0.22
D4101 DA204U
R4112 OPEN
R4113 OPEN
R4111 OPEN
GND
VCC
IC4101 BA10324AF
R4103 10k
R4105 100k
R4104 10k
R4110 10K
C4102 10/16
C4110 OPEN
D4104
D4105
R4115 10k
D4103 DAN202U
R4114 10k
Q4102 DTC144WUA
Q4101 DTC144WUA
IC4102 TC4S30F
VDD
VSS
C4108 OPEN
R4107 10k
C4103 0.01
IC4102 TC4S30F
R4108 0Ω
C4109 OPEN
C4104 OPEN
C4105 0.056
R4109 0Ω
C4106 OPEN
IC4103 BU4066BCF
TO SERVO CN4002 (Page 4-16)
CN4101
1 GND
2 CTL_COMP_IN
3 CTL_P
4 SW5V
5 CAP_FG
6 V_REF
1/2_LP(H) 7 CTL_1
8 SLOW_REV(H)
9 1/2_CAP_V
10 CAP_V_CTL
11 CAP_PFV
12 CFG_IN
A
B
C
D
E
F
G
H
1
2
3
4
5

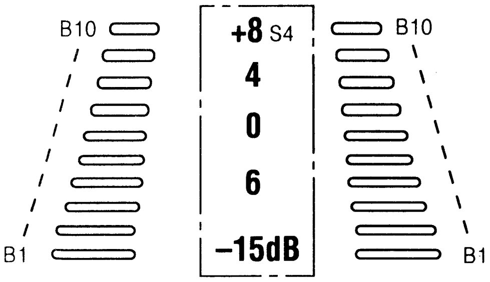
4.27 DD SLOW CIRCUIT BOARD


R4106
R4108
CN4101
12
1
W53
D4103
W51
C4108
Q4106
Q4102
D4104
W52
R4109
C4105
R4115
IC4103
Q4101
D4105
R4112
R4113
R4111
IC4101
R4107
R4105
C4103
C4110
IC4102
C4102
R4103
R4104
C4104
R4114
C4109
R4110
D4101
C4101
R4102
R4101
8
7
14
1
UL MARK
7 8
DD SLOW PWB
LPB10016
-001B TERMINAL PWB

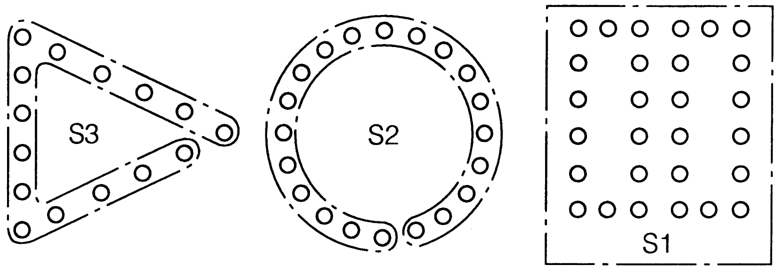
4.28 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT


6G
5G
4G
3G
2G
1G
1
+8
4
0
6
-15dB
NORM 2
VPS/PDC
VCR
1a
1
h
1
h
SVHS
2a
1a
col2
VN ⇨ LD
SP S L:P
1a
1
h
1
h
col1
REVIEW
2a
1a
1
f
1h
1
b
1g
1
e
1
c
1d


B10
B1
+8 S4
4
0
6
-15dB
B10
B1

(6G, 5G)



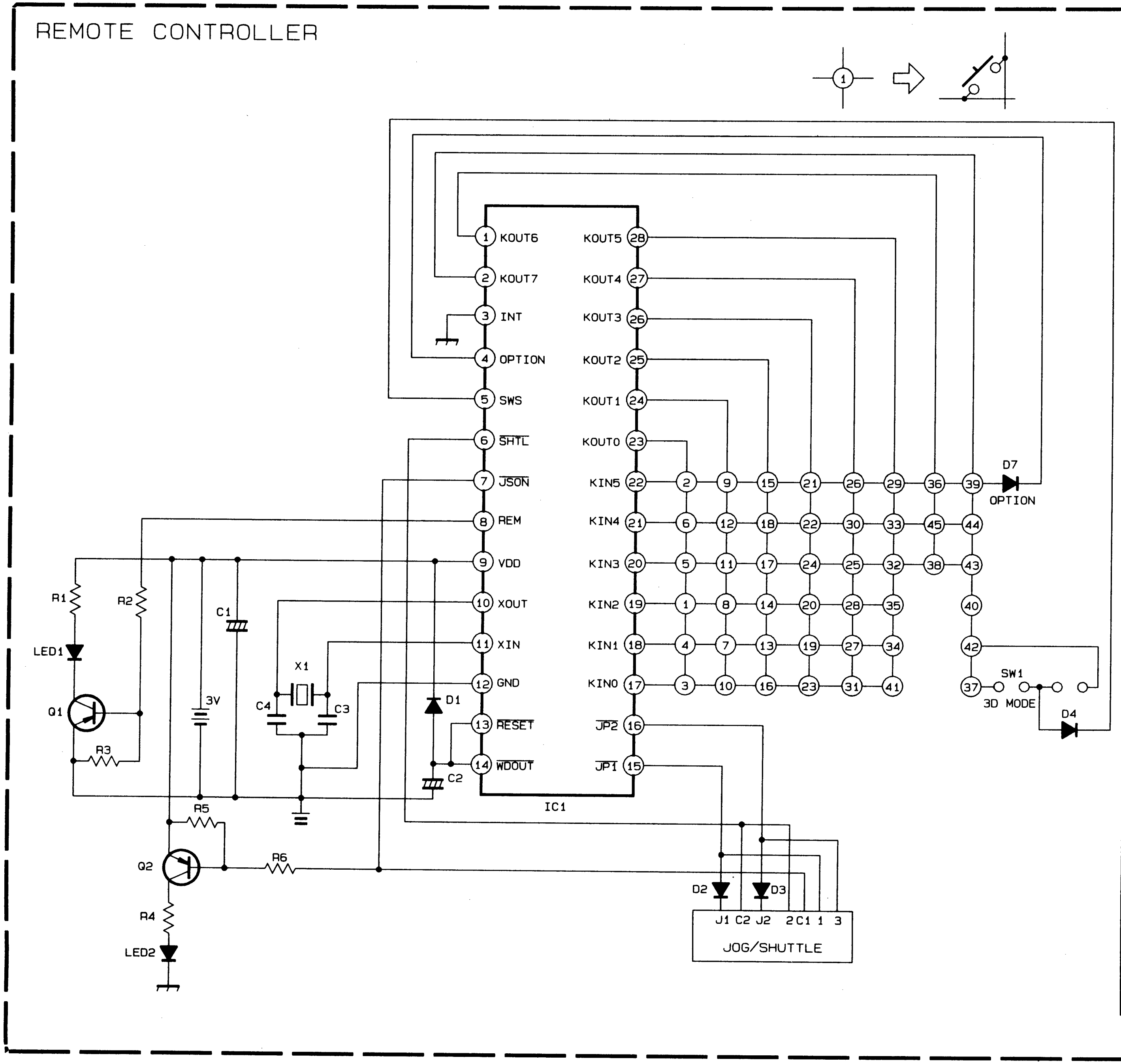
(4G)

ANODE CONNECTION

	6G	5G	4G	3G	2G	1G
P 1	—	↦	S2	1a	1a	1a
P 2	—	⇥	S1	1b	1b	1b
P 3	—	S4	S3	1f	1f	1f
P 4	—	NORM	VPS/PDC	1g	1g	1g
P 5	1	2	🕒	1c	1c	1c
P 6	⊳	⊲	◺	1e	1e	1e
P 7	B10	B10	📼	1d	1d	1d
P 8	B9	B9	VCR	col2	1h	1h
P 9	B8	B8	1a	2a	col1	2a
P10	B7	B7	1b	2b	⇨	2b
P11	B6	B6	1f	2f	VN	2f
P12	B5	B5	1g	2g	LD	2g
P13	B4	B4	1c	2c	SP	2c
P14	B3	B3	1e	2e	S (SEP)	2e
P15	B2	B2	1d	2d	: (SEP)	2d
P16	B1	B1	1h	SVHS	LP(SEP)	REVIEW

4.29 REMOTE CONTROL SCHEMATIC DIAGRAM

REMOTE CONTROLLER


1
KOUT6
KOUT7
INT
OPTION
SWS
SHTL
JSON
REM
VDD
XOUT
XIN
GND
RESET
WDOUT
KOUT5
KOUT4
KOUT3
KOUT2
KOUT1
KOUT0
KIN5
KIN4
KIN3
KIN2
KIN1
KIN0
JP2
JP1
IC1
D7
OPTION
SW1
3D MODE
D4
R1
R2
LED1
C1
Q1
R3
3V
C4
X1
C3
D1
C2
R5
Q2
R6
R4
LED2
D2
D3
J1 C2 J2 2 C1 1 3
JOG/SHUTTLE

Key No.	Key Name
1	AUDIO/MUTE
2	POWER
3	RE-VIEW
4	TV/VCR
5	ENTER
6	DISPLAY
7	1
8	2
9	3
10	4
11	5
12	6
13	7
14	8
15	9
16	CANCEL(1-)
17	0
18	TIMER(2-)
19	START+
20	STOP+
21	DATE+
22	PROG(CH)+
23	START-
24	STOP-
25	DATE-
26	PROG(CH)-
27	PROG
28	PROG CHECK
29	SP/EP(-/--)
30	SKIP
31	REW
32	PLAY
33	FF
34	REC
35	STOP
36	PAUSE
37	<</TV VOL-
38	Δ/TV PROG+
39	>>TV VOL+
40	∇/TV PROG-
41	MENU
42	A/B
43	C.MEMORY
44	OK
45	JOG/SHUTTLE
34+32	REC+START
34+36	REC+PAUSE

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

4.30 VOLTAGE CHARTS

<VIDEO/N.AUDIO>

MODE PIN NO.	REC	PLAY
IC1		
1	2.5	2.5
2	2.4	2.4
3	0	0
4	2.2	2.2
5	0	0
6	0.3	0.5
7	2.4	2.4
8	2.4	2.4
9	2.4	2.4
10	2.4	2.4
11	2.4	2.4
12	5.0	5.0
13	1.8	1.6
14	1.8	1.5
15	2.6	1.9
16	1.5	0.7
17	2.0	2.0
18	2.2	2.2
19	3.0	3.0
20	2.7	2.7
21	2.3	2.3
22	2.3	2.3
23	3.0	3.0
24	2.0	2.0
25	1.4	1.4
26	2.0	2.0
27	0	0
28	5.0	5.0
29	1.1	1.1
30	3.2	3.2
31	2.7	2.7
32	0	0
33	0	0
34	0	0
35	3.0	3.0
36	5.0	5.0
37	0	0
38	5.0	5.0
39	3.1	3.1
40	5.0	5.0
41	5.0	5.0
42	1.9	1.9
43	5.0	5.0
44	2.5	2.5
45	0	0
46	2.0	2.0
47	0	0
48	0	0
49	0	0
50	0.4	0.4
51	1.3	1.3
52	1.3	1.3
53	3.0	3.0
54	1.9	1.9
55	2.0	2.0
56	2.2	2.8
57	0	0
58	3.0	3.0
59	3.4	3.4
60	2.1	2.1
61	4.9	4.9
62	4.6	4.6
63	4.6	4.6
64	0	0
65	1.7	1.7
66	5.0	5.0
67	4.9	4.9
68	0	0
69	2.7	2.7
70	2.8	2.8
71	2.1	2.1
72	2.2	2.1
73	1.6	1.6
74	2.7	1.0
75	2.1	2.1
76	2.5	2.5
77	4.7	4.6
78	2.7	2.7
79	4.3	2.1
80	0	0
81	-	-
82	1.2	1.2
83	2.5	2.5
84	0	0
85	0	0
86	2.4	2.4
87	2.1	2.1
88	2.1	2.1
89	2.4	2.4
90	5.0	5.0
91	0	0
92	0	0
93	0	0
94	0	0
95	2.8	2.8
96	5.0	5.0
97	0	0
98	5.0	5.0
99	0.6	0.6
100	2.5	2.5
IC2		
1	2.8	2.8
2	3.9	3.9
3	2.8	2.7
4	4.9	0
5	2.8	2.8
6	5.0	5.0
7	1.9	2.0
8	0	0
Q1		
E	4.2	4.2
C	0	0
B	3.6	3.6
Q2		
E	0	0
C	2.1	2.1
B	0	0
Q6		
E	2.7	2.7
C	0	0
B	2.0	2.0
Q13		
E	-	-
C	-	-
B	-	-
Q14		
E	-	-
C	-	-
B	-	-
Q15		
E	-	-
C	-	-
B	-	-
Q16		
E	5.1	5.1
C	5.0	0
B	0.1	5.1
Q17		
E	0	0
C	0	0
B	3.3	3.3
Q18		
E	3.2	0
C	0	1.9
B	0	0.1
Q38		
E	1.3	1.7
C	5.0	5.0
B	0.7	2.4
Q47		
E	4.9	4.9
C	2.2	2.1
B	3.0	2.9
Q48		
E	2.2	2.1
C	0	0
B	0.8	0.7
Q102		
E	-	-
C	-	-
B	-	-
Q152		
E	5.0	2.7
C	0	0
B	4.5	2.1
Q153		
E	2.1	2.1
C	5.0	5.0
B	2.7	2.7
Q401		
E	11.5	11.5
C	11.5	0.6
B	10.7	11.5
Q402		
E	0	0
C	0	11.5
B	4.9	0
Q403		
E	0	0
C	0	0.6
B	5.0	0
Q404		
E	7.6	0.6
C	0	0
B	7.1	0.6
Q405		
E	9.6	0.5
C	0	0
B	9.4	0.5
Q2001		
E	-11.9	0
C	0	0
B	-18.4	0.7
Q2002		
E	-11.9	0
C	0	0
B	-18.1	0.6
Q2003		
E	5.0	5.0
C	-18.2	5.0
B	4.9	0
Q2051		
E	0	0
C	8.0	0.3
B	0.4	0.2
Q2052		
E	11.4	11.5
C	11.2	3.5
B	10.7	11.4
Q2053		
E	0	0
C	0	3.5
B	4.9	0
Q2054		
E	11.2	3.5
C	11.0	0.2
B	10.4	3.5
Q2055		
E	0	0
C	0	2.5
B	4.5	0
Q2061		
E	0	0
C	7.3	0.2
B	0.2	0.2
Q2062		
E	10.7	0
C	10.6	0.3
B	0	0.3
Q2063		
E	0	0
C	0	0.3
B	5.0	0
Q2102		
E	0	0
C	0	0
B	5.0	5.0
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.4	2.2
6	2.4	2.2
7	2.1	2.2
8	2.1	2.2
9	4.2	0
10	4.1	0
11	4.1	0
12	0	0
13	0	0
CN101		
1	0	0
2	-	-
3	4.7	4.7
4	-	-
5	4.7	4.7
6	0	0
7	0	0
8	0	0
9	0.6	0.6
10	0	0
11	0	0
12	0	0
13	5.2	5.2
14	5.2	5.2
15	0	0
16	0	0
17	0.4	0.4
18	0	0
19	3.4	3.4
20	0	0
21	0.6	0.6
22	2.1	2.1
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	0	0
CN102		
1	1.5	1.1
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	1.4	1.1
8	2.3	2.1
9	0.8	1.8
10	4.3	4.3
11	2.4	2.4
12	3.3	3.3
13	0	0
14	0	0
15	2.3	2.3
16	0	0
17	4.7	4.7
18	4.6	4.6
19	5.2	5.2
20	5.2	5.2
21	2.4	2.4
22	0	0
23	1.7	1.7
24	0	0
25	0	0
26	2.6	2.6
27	2.2	2.2
28	0	0
29	0	0
30	0	0
CN2001		
1	0	0.1
2	0	0
3	0	0
4	0	0
5	0	0
6	1.7	2.5
7	1.9	2.5
CN2002		
1	0	0
2	0.1	0
CN2101		
1	5.1	5.1
2	0	0
3	0	0
4	2.6	2.6
5	0	0
6	0	0
7	4.9	4.9
8	0	0
9	0	0

<FMA>

MODE PIN NO.	REC	PLAY
IC2201		
1	1.9	2.0
2	0	0
3	2.5	2.5
4	0	0
5	0	0
6	2.5	2.5
7	0	0
8	2.5	2.5
9	1.4	1.4
10	0	0
11	2.5	2.4
12	2.5	2.5
13	2.5	2.4
14	2.0	2.0
15	2.5	0
16	4.6	4.6
17	4.6	4.6
18	0	2.6
19	0	0
20	0	1.6
21	2.0	2.0
22	0	0
23	0	0
24	2.0	2.0
25	2.5	2.3
26	2.5	2.4
27	2.5	2.5
28	0	0
29	1.4	1.4
30	2.6	2.5
31	5.0	5.0
32	0	0
33	2.5	2.5
34	0	0
35	0	0
36	1.9	2.0
37	2.5	2.5
38	2.5	2.5

MODE PIN NO.	REC	PLAY
39	9.5	9.5
40	0	0
41	4.4	4.4
42	0	0
43	0	0
44	0	0
45	4.3	4.3
46	4.4	4.4
47	0	0
48	1.1	1.2
IC2251		
1	0	-
2	4.2	0
3	0.5	0.6
4	0	0
5	0.5	0.6
6	4.2	0
7	4.1	0
8	2.5	2.5
9	0.6	0
10	4.9	5.0
11	3.0	3.9
12	0	0
13	1.8	1.0
14	1.9	1.8
15	0.2	0
16	4.4	0.8
Q2251		
E	4.4	0
C	4.4	0.8
B	0.5	0.3
Q2253		
E	2.5	0
C	0.5	0
B	0	4.6
Q2254		
E	4.9	0
C	0	0
B	0	5.0
Q2255		
E	5.0	5.0
C	5.0	5.0
B	0	0.1
Q2711		
E	0	0
C	0	0
B	-1.8	-2.0
Q2712		
E	0	0
C	0	0
B	-1.8	-2.0
Q2713		
E	5.7	5.8
C	-1.9	-2.0
B	5.7	5.8
Q2714		
E	0	0
C	5.7	5.8
B	0	0
CN2701		
1	0	0
2	0	0
3	0	0
4	0	0
5	11.4	11.5
6	0	0
7	0	0
8	0	0

<SYSCON>

MODE PIN NO.	REC	PLAY
IC3001		
1	1.1	1.2
2	0	0
3	5.0	5.0
4	5.0	5.0
5	0	0
6	0	0
7	1.5	1.5
8	1.2	1.3
9	0	0
10	-	-
11	-	-
12	5.1	5.1
13	0	0
14	0	0
15	0	4.9
16	5.0	5.0
17	0	0
18	0	0
19	4.2	4.2
20	0	0
21	0	0
22	5.1	5.0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	-	0.7
29	-	-
30	4.3	-
31	0.4	0.3
32	0.3	0.3
33	0.9	0.9
34	0.2	0.3
35	0.3	0.3
36	0.3	0.2
37	0.2	0.2
38	0.2	0.2
39	5.0	0
40	5.0	0
41	5.0	5.0
42	5.1	5.1
43	0	0
44	5.0	5.0
45	0	0
46	0	0
47	0	0
48	0	0
49	0	0
50	4.9	4.9
51	0	0
52	5.1	0
53	0	0
54	0	0
55	0	0
56	-	-
57	1.1	1.0
58	5.0	5.0
59	4.7	4.7
60	5.1	5.1
61	4.5	4.6
62	0	0
63	5.1	5.1
64	0	0
65	0	0
66	0	0
67	-	0
68	0	0
69	3.0	3.5
70	-	-
71	-	-
72	5.1	5.1
73	5.0	5.1
74	5.0	5.0
75	5.0	5.1
76	5.0	5.0
77	4.5	4.5

MODE PIN NO.	REC	PLAY
78	1.7	1.7
79	4.0	2.5
80	0	0
IC3002		
1	0	0
2	12.2	12.2
3	1.8	2.0
4	0	0
5	0	0
6	12.1	12.2
7	1.9	2.0
8	12.2	12.1
9	0	0
IC3003		
1	5.1	5.1
2	5.1	5.1
3	0	0
IC3004		
1	0	0
2	0	0
3	0	0
4	0	0
5	-	-
6	-	-
7	0	0
8	5.0	5.0
IC3301		
1	0.2	1.5
2	0	0.6
3	5.0	5.0
4	5.0	5.1
5	0	0
6	0	0
7	0	0
8	5.0	5.0
9	0	0
10	-	-
11	-	-
12	-	-
13	0	0
14	5.0	5.0
15	5.0	5.1
16	0	0
17	0	0
18	0	0
19	4.8	4.9
20	4.9	5.0
21	4.6	4.6
22	-	-
23	-	-
24	-	-
25	4.6	4.6
26	0	0
27	0	0
28	0	0
29	-	-
30	0.8	0.7
31	0	0
32	5.0	5.1
33	0	0
34	0.2	0.2
35	0.2	0.2
36	0.3	0.3
37	0.3	0.3
38	0.2	0.2
39	0.8	0.8
40	0.3	0.3
41	0.2	0.5
42	4.3	4.3
43	5.0	0
44	0	5.1
45	0	0
46	5.0	5.0
47	0	5.1
48	5.0	0
49	0	0

MODE PIN NO.	REC	PLAY
50	0	0
51	0	0
52	5.0	-
53	0	0
54	0	0
55	0	0
56	0	0
57	5.0	5.1
58	0	0
59	5.0	5.0
60	0	0
61	0	0
62	0	0
63	5.0	5.1
64	0	0
65	0	0
66	0	0
67	5.0	5.1
68	5.0	5.0
69	0	0
70	5.0	5.0
71	2.5	2.4
72	5.0	5.1
73	4.6	4.5
74	2.1	4.3
75	1.5	1.5
76	2.4	2.5
77	0	0
78	0	4.4
79	0	0
80	4.3	4.3
IC3302		
1	0	0
2	12.3	12.3
3	0.2	0.2
4	0	0
5	0	0
6	12.3	12.3
7	0	0
8	3.5	3.5
9	0	0
IC7201		
1	0	0
2	2.8	2.8
3	3.2	3.2
4	4.6	4.6
5	0	0
6	0	0
7	0	0
8	4.9	4.9
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	5.1	5.1
20	5.1	5.1
21	5.0	5.0
22	0.4	0.4
23	0.5	0.5
24	5.0	5.0
25	0.2	0.2
26	0.2	0.2
27	0.2	0.2
28	0.2	0.2
29	0	0
30	0	0.3
31	0.3	0.2
32	0.3	0.3
33	0	0
34	0	0

MODE PIN NO.	REC	PLAY
35	0	0
36	0	0
Q3001		
1	0	0
2	4.6	4.6
Q3002		
1	0	0
2	5.0	5.0
Q3003		
E	0	0
C	0	0
B	0.7	0.7
Q3005		
E	0	0
C	12.2	12.3
B	0	0
Q3006		
E	0	0
C	0	0
B	0	0
Q3301		
E	3.5	3.5
C	3.5	3.5
B	4.1	4.1
CN3001		
1	0	0
2	2.5	2.5
3	2.4	2.4
4	5.0	5.0
5	0	0
6	5.0	5.0
7	0	0
8	8.5	8.5
CN3003		
1	1.9	1.3
2	1.9	1.3
CN3004		
1	5.0	5.0
2	5.0	5.0
3	0	0
4	0	0
CN3005		
1	5.0	5.1
2	5.0	5.1
3	4.7	4.7
4	5.0	5.0
5	0	1.3
6	1.3	4.4
7	4.6	4.9
8	4.6	0
9	0	0
10	-20.9	-20.8
11	-17.2	-17.1
12	-29.7	-29.6
CN3301		
1	0	0
2	0	0
3	0	0
4	5.1	5.1
5	0	0
6	0	0

<SERVO>

MODE PIN NO.	REC	PLAY
IC4001		
1	0	0
2	0.4	0.2
3	2.3	2.3
4	0	0
5	3.1	0
6	5.0	-
7	1.5	1.5
8	2.9	2.9
9	5.0	5.0
10	2.5	2.5
11	2.5	2.5
12	2.5	2.5
13	1.7	2.5
14	2.8	2.5
15	2.5	2.5
16	0	0
17	2.4	2.4
18	0	0
19	0.5	0.5
20	0	-
21	-	-
22	1.6	1.6
23	5.0	5.0
24	4.7	4.7
Q4001		
E	0	0
C	0	0.4
B	4.5	0
Q4002		
E	-	-
C	-	-
B	-	-
CN4001		
1	12.1	12.2
2	0	0
3	1.5	1.5
4	1.5	1.5
CN4002		
1	0	0
2	2.6	2.6
3	2.6	2.6
4	5.1	5.1
5	2.6	2.6
6	2.5	2.5
7	0.5	0.5
8	0	0
9	2.5	2.5
10	2.9	2.9
11	3.1	3.1
12	2.4	2.4

<SW. REG>

MODE PIN NO.	REC	PLAY
Q5101		
S	0	0
D	302.1	302.4
G	3.5	3.4
Q5102		
E	0	0
C	3.5	3.4
B	0.1	0.1
Q5301		
E	20.7	20.7
C	11.4	11.4
B	20.6	20.6
Q5302		
E	0	0
C	20.2	20.9
B	0	0
Q5304		
E	0	0
C	0	0
B	4.6	4.5
Q5305		
E	0	0
C	11.0	11.0
B	0.5	0.6
Q5306		
E	5.2	5.2
C	6.0	6.0
B	5.8	5.8
Q5315		
E	5.2	5.1
C	5.9	5.9
B	5.8	5.8
Q5316		
E	0	0
C	5.8	5.8
B	0.6	0.6
Q5317		
E	5.2	5.2
C	5.9	5.9
B	5.8	5.8
Q5318		
E	0	0
C	5.8	5.8
B	0.6	0.5
Q5320		
E	12.2	12.2
C	12.2	12.2
B	0	0
Q5322		
E	11.6	11.6
C	12.2	12.2
B	12.2	12.2
Q5323		
E	11.5	11.5
C	12.2	12.2
B	12.0	12.1
Q5451		
E	11.4	11.4
C	8.5	8.5
B	11.4	11.4
Q5452		
E	0	0
C	11.4	11.4
B	0.4	0.4

<TUNER>

MODE PIN NO.	REC	PLAY
IC6080		
1	1.2	1.2
2	2.5	2.4
3	4.4	4.5
4	0	0
5	7.5	7.6
6	7.6	7.5
7	7.6	7.5
8	9.1	9.1
Q6001		
E	9.1	9.1
C	11.4	11.4
B	9.8	9.8
Q6030		
E	1.7	1.7
C	0	0
B	1.0	1.0
Q6031		
E	0	0
C	1.0	1.0
B	4.1	4.1
UN6701(HR-S9500EH)		
1	–	–
2	–	–
3	0	0
4	5.1	5.1
5	11.3	11.3
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	4.1	4.1

MODE PIN NO.	REC	PLAY
UN6701 (HR-S9500E)		
1	–	–
2	–	–
3	0	0
4	5.1	5.1
5	11.3	11.4
6	0	0
7	0	0
8	0	0
9	0	0
10	3.0	3.0
11	4.6	4.6

<TERMINAL MAIN>

MODE PIN NO.	REC	PLAY
CN7104		
1	0	0
2	0	0
3	0	0
4	5.1	5.1
5	2.3	2.2
6	4.2	4.2
7	2.7	2.7
8	5.0	5.1
9	1.0	1.0
10	1.6	1.6
11	4.7	4.7
CN7105		
1	0	0
2	1.8	1.8
3	11.5	11.5
4	0	0
5	1.1	1.1
6	0	0
7	0	0
8	0	0
9	11.3	11.3
10	-	-
11	-	-
12	0	0
13	0	5.1
CN7106		
1	5.0	5.0
2	0.2	0
3	-10.9	-10.9
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
CN7162		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	-	-
7	-	-

<3D SVHS(VIDEO/Y/C SEP)>

MODE PIN NO.	REC	PLAY
IC1001		
1	2.9	2.9
2	2.9	4.1
3	2.3	2.3
4	2.3	2.3
5	2.7	2.9
6	2.8	2.8
7	2.8	2.3
8	2.3	3.3
9	2.4	2.3
10	2.7	2.7
11	2.8	2.8
12	2.2	2.5
13	4.6	4.6
14	4.6	4.6
15	2.6	2.6
16	2.9	2.8
17	0	0
18	3.2	2.1
19	0	0
20	0	0
21	2.3	2.3
22	2.7	2.8
23	2.3	2.4
24	0	0
25	3.5	3.5
26	2.1	2.1
27	2.8	2.8
28	2.8	2.8
29	2.8	2.8
30	0	0
31	2.8	2.8
32	0	0
33	2.8	2.8
34	5.1	5.1
35	2.8	2.8
36	1.9	1.9
37	3.1	3.1
38	2.9	2.9
39	2.4	2.4
40	2.7	2.7
41	2.9	2.9
42	2.8	2.8
43	3.1	3.1
44	2.3	2.1
45	0	0
46	2.8	2.8
47	1.9	1.1
48	2.8	2.8
49	5.1	5.1
50	2.8	2.8
51	5.1	5.1
52	2.8	2.8
53	2.3	2.0
54	2.6	3.5
55	0	0
56	2.3	2.3
IC1002		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
IC1006		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
IC1007		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
IC1401		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	-	-
45	-	-
46	-	-
47	-	-
48	-	-
49	-	-

MODE PIN NO.	REC	PLAY
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
62	-	-
63	-	-
64	-	-
65	-	-
66	-	-
67	-	-
68	-	-
69	-	-
70	-	-
71	-	-
72	-	-
73	-	-
74	-	-
75	-	-
76	-	-
77	-	-
78	-	-
79	-	-
80	-	-
81	-	-
82	-	-
83	-	-
84	-	-
85	-	-
86	-	-
87	-	-
88	-	-
89	-	-
90	-	-
91	-	-
92	-	-
93	-	-
94	-	-
95	-	-
96	-	-
97	-	-
98	-	-
99	-	-
100	-	-
IC1402		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-

MODE PIN NO.	REC	PLAY
25	-	-
26	-	-
27	-	-
28	-	-
Q1004		
E	-	-
C	-	-
B	-	-
Q1005		
E	0	0
C	0	0
B	2.8	2.8
Q1006		
E	4.1	4.1
C	0	0
B	3.5	3.5
Q1007		
E	-	-
C	-	-
B	-	-
Q1010		
E	0	0
C	0	0
B	0	0
Q1012		
E	2.6	2.6
C	5.2	5.2
B	3.3	3.3
Q1014		
E	0	0
C	1.3	1.3
B	0.6	0.6
Q1015		
E	0.7	0.7
C	3.3	3.3
B	1.3	1.3
Q1016		
E	-	-
C	-	-
B	-	-
Q1021		
E	-	-
C	-	-
B	-	-
Q1022		
E	0	0
C	0	0
B	0.3	4.1
Q1023		
E	0	0
C	0	0
B	0	0
Q1401		
E	-	-
C	-	-
B	-	-
Q1402		
E	-	-
C	-	-
B	-	-
Q1403		
E	-	-
C	-	-
B	-	-
Q1404		
E	-	-
C	-	-
B	-	-
Q1405		
E	-	-
C	-	-
B	-	-
Q1406		
E	-	-
C	-	-
B	-	-

MODE PIN NO.	REC	PLAY
Q1407		
E	-	-
C	-	-
B	-	-
Q1408		
E	-	-
C	-	-
B	-	-
Q1409		
E	-	-
C	-	-
B	-	-
Q1410		
E	-	-
C	-	-
B	-	-
Q1411		
E	-	-
C	-	-
B	-	-
Q1412		
E	-	-
C	-	-
B	-	-
Q1413		
E	-	-
C	-	-
B	-	-
Q1414		
E	-	-
C	-	-
B	-	-
Q1416		
E	-	-
C	-	-
B	-	-
Q1417		
E	-	-
C	-	-
B	-	-
Q1418		
E	-	-
C	-	-
B	-	-
CN1003		
1	2.1	2.1
2	0	0
3	2.3	2.3
4	0	0
5	5.7	5.8
6	0	0
7	5.7	5.7

<DEMODULATOR> (HR-S9500EH)

MODE PIN NO.	REC	PLAY
IC6701		
1	–	–
2	–	–
3	–	–
4	–	–
5	5.1	5.1
6	5.1	5.1
7	–	–
8	–	–
9	–	–
10	–	–
11	–	–
12	–	–
13	–	–
14	–	–
15	–	–
16	5.1	5.1
17	0	0

MODE PIN NO.	REC	PLAY
18	–	–
19	–	–
20	4.7	4.8
21	–	–
22	–	–
23	0	0
24	0	0
25	0	0
26	0	0
27	–	–
28	–	–
29	0	0
30	–	–
31	–	–
32	–	–
33	8.3	8.3
34	7.4	7.4
35	–	–
36	3.7	3.7
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	0	0
43	2.6	2.6
44	3.2	3.2
45	0	0
46	5.1	5.0
47	1.5	1.5
48	1.5	1.5
49	0	0
50	0	0
51	2.3	2.3
52	2.0	2.0
Q6701		
E	8.3	8.3
C	11.3	11.4
B	8.9	8.9
Q6702		
E	2.9	2.9
C	8.3	8.3
B	3.7	3.6
Q6704		
E	0	0
C	0	0
B	3.0	3.0
Q6705		
E	0	0
C	0	0
B	3.0	3.0
CN6701		
1	–	–
2	–	–
3	0	0
4	5.1	5.1
5	11.3	11.3
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	4.1	4.1

<DEMODULATOR> (HR-S9500E)

MODE PIN NO.	REC	PLAY
IC6701		
1	2.6	2.6
2	–	–
3	–	–
4	–	–
5	–	–
6	–	–

MODE PIN NO.	REC	PLAY
7	2.3	2.2
8	2.4	2.4
9	2.1	2.1
10	2.3	2.2
11	2.6	2.7
12	4.4	4.4
13	0	0
14	5.1	5.1
15	2.6	2.6
16	–	–
IC6702		
1	–	–
2	3.5	3.5
3	2.8	2.8
4	2.6	2.6
5	2.6	2.6
6	2.6	2.6
7	2.6	2.6
8	2.6	2.6
9	–	–
10	–	–
11	–	–
12	–	–
13	2.5	2.6
14	2.6	2.6
15	2.5	2.5
16	0	0
17	2.6	2.6
18	5.1	5.1
19	3.3	3.3
20	–	–
Q6701		
E	0	0
C	0	0
B	3.9	3.9
Q6702		
E	0	0
C	0	0
B	3.9	3.9
CN6701		
1	–	–
2	–	–
3	0	0
4	5.1	5.1
5	11.3	11.4
6	0	0
7	0	0
8	0	0
9	0	0
10	3.0	3.0
11	4.6	4.6

<TERMINAL>

MODE PIN NO.	REC	PLAY
IC7131		
1	1.6	1.6
2	0	0
3	1.6	1.6
4	11.5	11.5
5	2.0	2.0
6	0	0
7	5.0	5.0
8	11.4	11.4
9	4.9	5.0
10	5.4	5.4
11	5.1	5.1
12	0	0
13	-	-
14	-	-
15	5.7	5.7
16	5.1	0
17	5.7	5.7
18	4.9	5.0

MODE PIN NO.	REC	PLAY
19	11.5	11.4
20	2.6	2.6
21	1.4	0
22	1.4	0
23	2.5	2.5
24	2.0	2.0
IC7132		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	11.5	11.5
9	6.5	6.5
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
IC7191		
1	6.3	6.4
2	5.2	5.3
3	5.8	5.7
4	0	0
5	5.8	5.8
6	5.7	5.7
7	0	0
8	6.4	6.4
9	6.4	6.4
10	0	0
11	6.4	6.4
12	0	0
13	11.5	11.5
14	6.5	6.4
15	0	0
16	6.4	6.4
Q7131		
E	2.4	2.4
C	0	0
B	1.7	1.8
Q7151		
E	2.9	3.0
C	0	0
B	2.3	2.3
Q7152		
E	5.6	5.6
C	0	0
B	5.0	5.0
Q7191		
E	0	0
C	11.5	11.5
B	0.7	0.7
CN7151		
1	2.1	2.1
2	0	0
3	2.3	2.3
4	0	0
5	5.7	5.8
6	0	0
7	5.7	5.7
CN7191		
1	0	0
2	0	0
3	0	0
4	0	0

<ON SCREEN)>

MODE PIN NO.	REC	PLAY
IC201		
1	0	0
2	2.6	2.6

MODE PIN NO.	REC	PLAY
3	4.2	4.2
4	0	0
5	2.0	2.0
6	-	-
7	-	-
8	5.0	5.0
9	-	-
10	4.6	4.6
11	-	-
12	5.0	5.0
13	2.9	2.9
14	2.8	2.8
15	0	0
16	1.2	1.2
17	2.5	2.5
18	5.0	5.0
19	2.3	2.3
20	0	0
21	2.3	2.3
22	1.9	1.9
23	5.0	5.0
24	3.0	3.0
25	2.5	2.5
26	5.0	5.0
27	5.0	5.0
28	3.7	3.7
29	5.0	5.0
30	5.0	5.0

<SPATIALIZER>

MODE PIN NO.	REC	PLAY
IC2701		
1	4.5	4.5
2	4.5	4.5
3	4.5	4.5
4	4.4	4.4
5	4.5	4.5
6	4.5	4.5
7	4.5	4.5
8	0	0
9	4.5	4.5
10	0.6	0.6
11	0.4	0.4
12	9.0	9.0
13	0.6	0.6
14	0.3	0.3
15	0	0
16	4.6	4.6
17	2.9	2.9
18	8.2	8.2
19	0	0
20	0	0
Q2701		
E	9.1	9.1
C	11.4	11.4
B	9.7	9.7

<SW/DISPLAY>

MODE PIN NO.	REC	PLAY
IC7001		
1	5.1	5.1
2	2.2	2.2
3	0	0
4	2.1	2.2
5	5.1	5.1
6	4.1	4.1
7	5.1	5.1
8	5.1	5.1
9	5.1	5.1

MODE PIN NO.	REC	PLAY
10	5.1	5.1
11	5.1	5.1
12	4.4	4.3
13	-	-
14	-	-
15	4.9	4.9
16	-29.4	-29.4
17	-29.5	-29.4
18	-29.2	-29.2
19	-29.3	-29.2
20	-29.3	-29.2
21	-24.9	-24.6
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	5.1	5.1
IC7002		
1	5.0	5.0
2	5.0	5.0
3	0	0
CN7001		
1	-29.5	-29.4
2	-16.8	-16.7
3	-20.5	-20.5
4	0	0
5	0	0
6	5.0	5.0
7	-	-
8	-	-
9	-	-
10	4.9	4.8
11	5.1	5.1
12	5.1	5.1
FW7001		
1	5.1	5.1
2	0	0

<JACK>

MODE PIN NO.	REC	PLAY
CN7191		
1	-	-
2	-	-
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
CN7192		
1	0	0
2	0	0
3	0	0
4	0	0

<VSC>

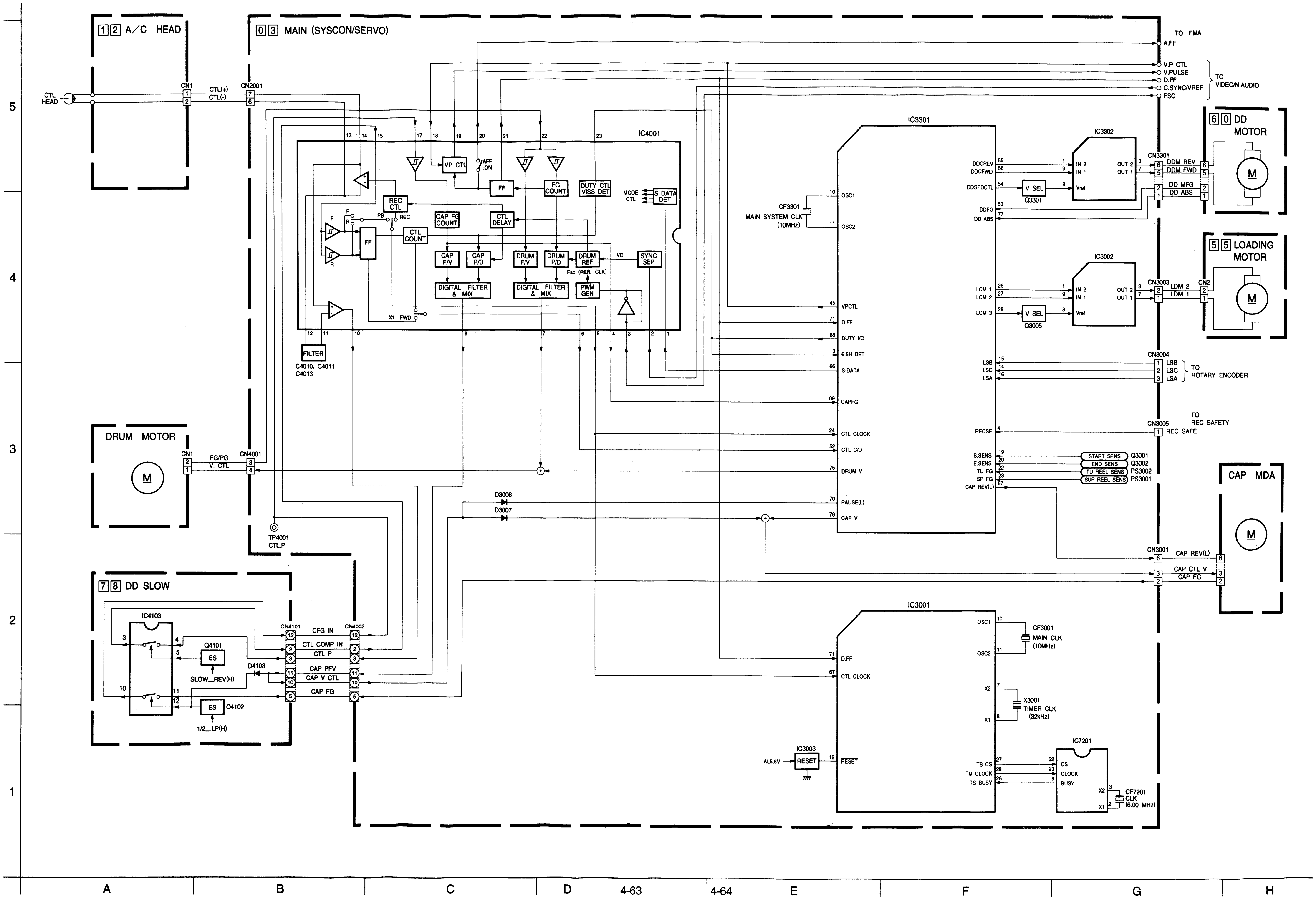
MODE PIN NO.	REC	PLAY
IC2501		
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	-	-
42	-	-
43	-	-
44	-	-
45	-	-
46	-	-
47	-	-
48	-	-
49	-	-
50	-	-
51	-	-
52	-	-
53	-	-
54	-	-
55	-	-
56	-	-
57	-	-
58	-	-
59	-	-
60	-	-
61	-	-
62	-	-
63	-	-
64	-	-
Q2501		
E	-	-
C	-	-
B	-	-
Q2502		
E	-	-
C	-	-
B	-	-
Q2503		
E	-	-
C	-	-

MODE PIN NO.	REC	PLAY
B	-	-

<DD SLOW>

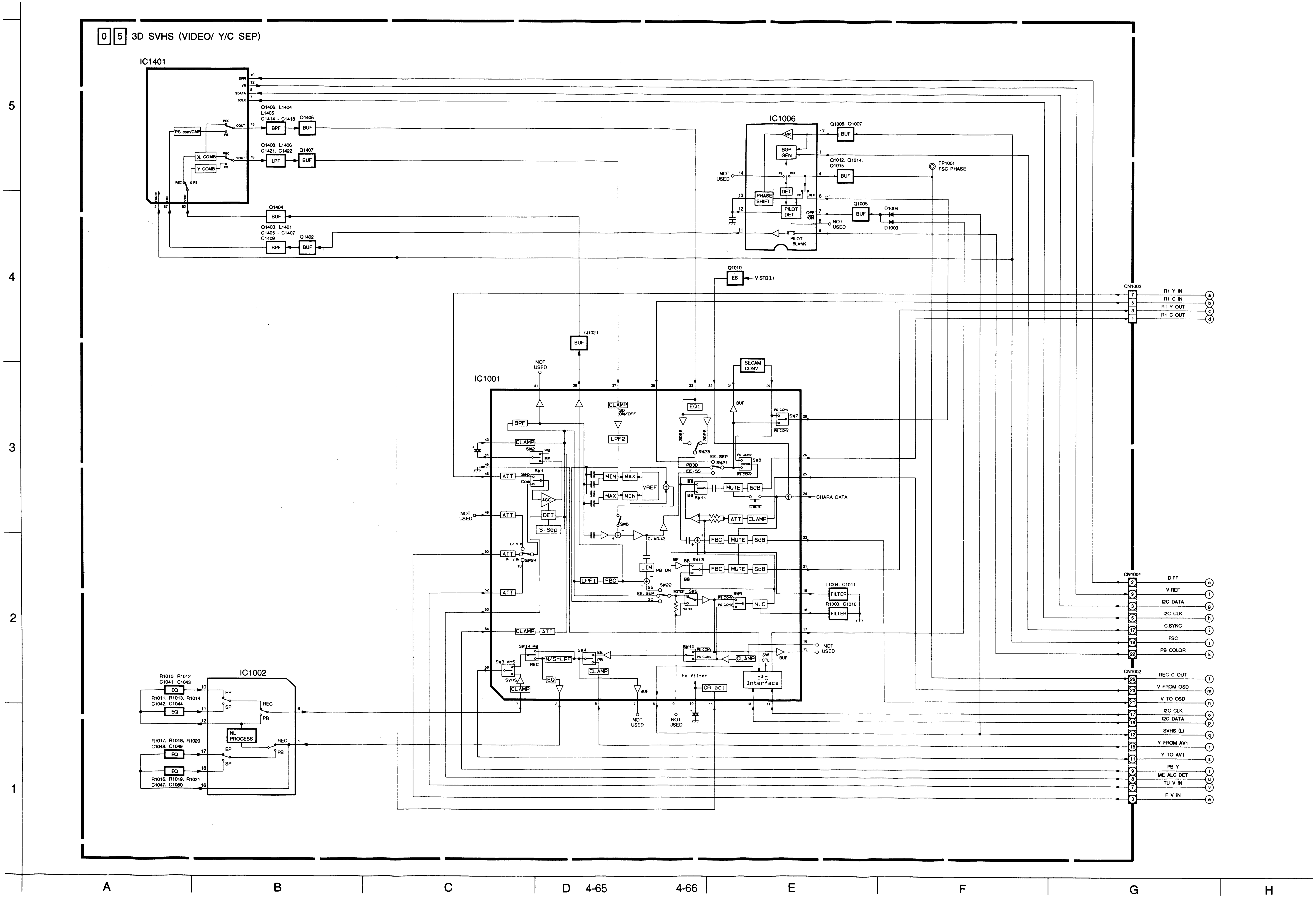
MODE PIN NO.	REC	PLAY
IC4101		
1	0	0
2	0	0
3	0	0
4	5.1	5.1
5	2.5	2.5
6	2.5	2.5
7	2.1	2.1
8	0	0
9	0	0
10	2.5	2.5
11	0	0
12	2.8	2.8
13	3.1	3.0
14	3.1	3.0
IC4102		
1	2.1	2.1
2	2.1	2.0
3	0	0
4	0.8	0.8
5	5.1	5.1
IC4103		
1	0	0
2	2.5	2.5
3	2.5	2.5
4	2.5	2.5
5	5.1	5.1
6	0.4	0.4
7	0	0
8	0.8	0.8
9	2.4	2.4
10	2.5	2.5
11	2.5	2.5
12	5.1	5.1
13	0	0
14	5.1	5.1
Q4101		
E	0	0
C	5.1	5.1
B	0	0
Q4102		
E	0	0
C	5.1	5.0
B	0.4	0.4
CN4101		
1	0	0
2	2.6	2.6
3	2.6	2.6
4	5.1	5.1
5	2.6	2.6
6	2.5	2.5
7	0.5	0.5
8	0	0
9	2.5	2.5
10	2.9	2.9
11	3.1	3.1
12	2.4	2.4

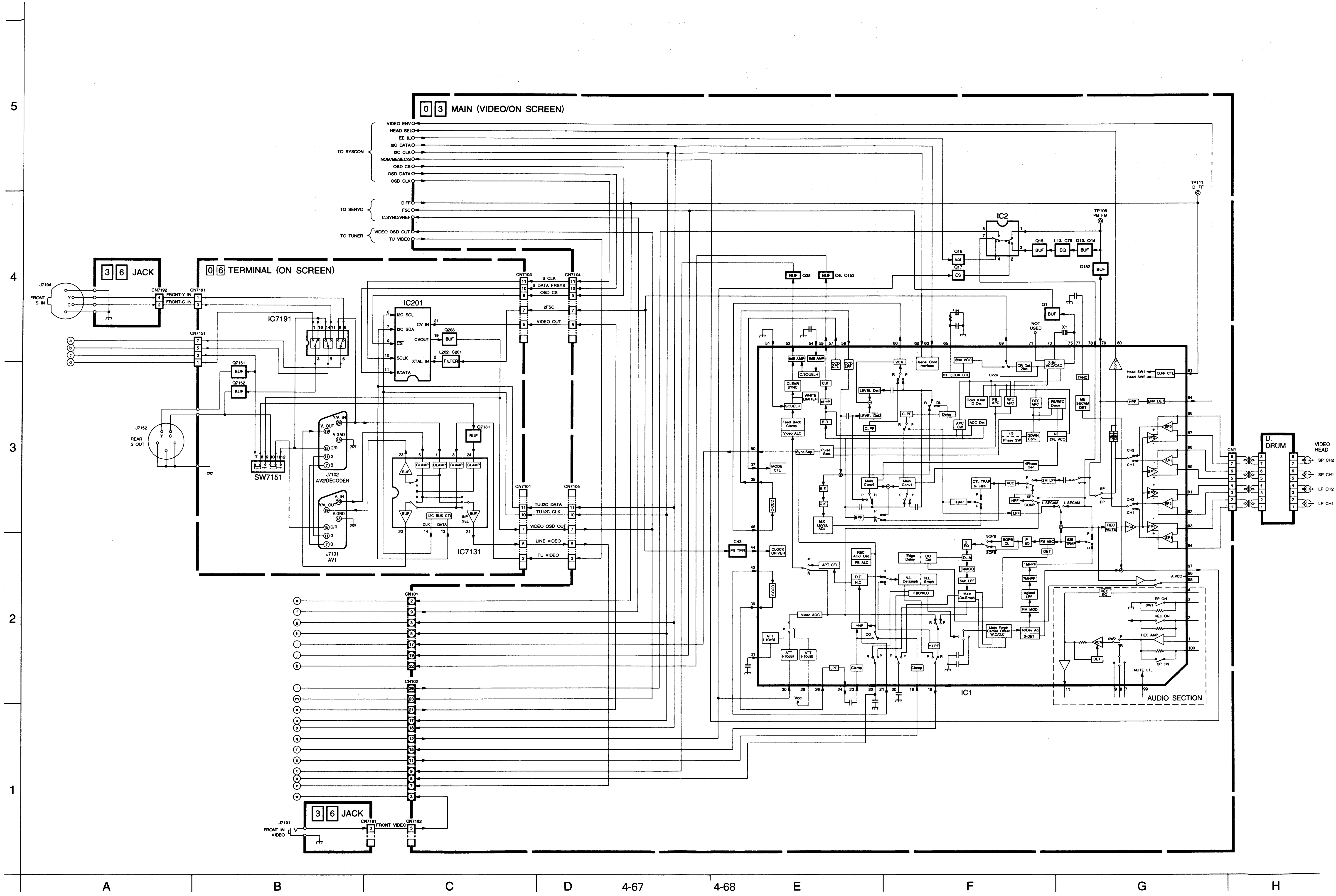
4.31 SYSTEM CONTROL/SERVO BLOCK DIAGRAM



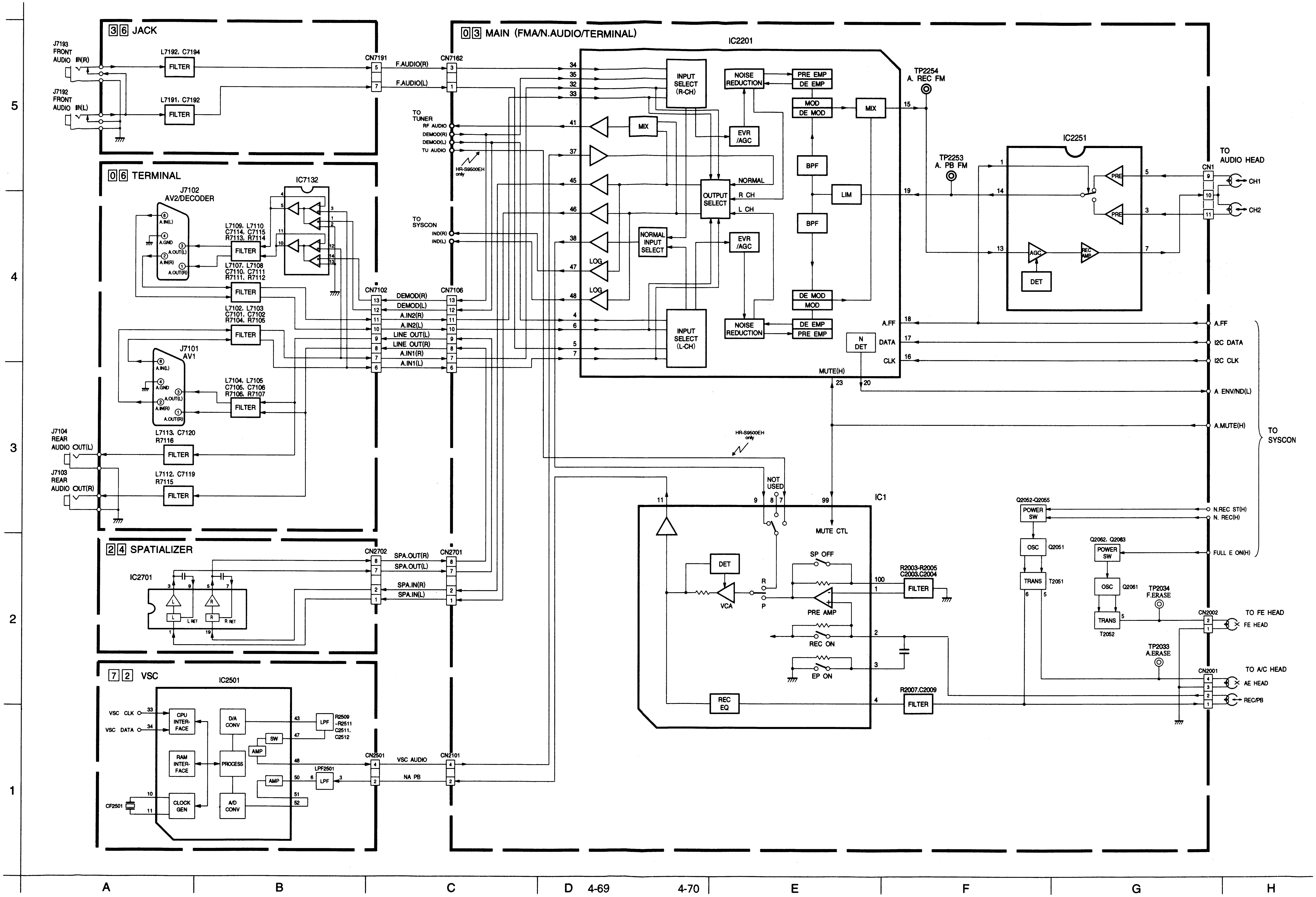
12 A/C HEAD
CTL HEAD
CN1
CTL(+)
CTL(-)
CN2001
03 MAIN (SYSCON/SERVO)
TO FMA
A.FF
V.P CTL
V.PULSE
D.FF
C.SYNC/VREF
FSC
TO VIDEO/V.AUDIO
IC4001
VP CTL
AFF :ON
FF
FG COUNT
DUTY CTL VISS DET
MODE CTL
S DATA DET
REC CTL
CAP FG COUNT
CTL DELAY
CTL COUNT
PB
REC
F
R
CAP F/V
CAP P/D
DRUM F/V
DRUM P/D
DRUM REF
VD
SYNC SEP
Fsc (REF CLK)
DIGITAL FILTER & MIX
DIGITAL FILTER & MIX
PWM GEN
X1 FWD
FILTER
C4010, C4011 C4013
IC3301
CF3301 MAIN SYSTEM CLK (10MHz)
OSC1
OSC2
VPCTL
D.FF
DUTY I/O
6.5H DET
S-DATA
CAPFG
CTL CLOCK
CTL C/D
DRUM V
PAUSE(L)
CAP V
DDCREV
DDCFWD
DDSPDCTL
DDFG
DD ABS
LCM 1
LCM 2
LCM 3
LSB
LSC
LSA
RECSF
S.SENS
E.SENS
TU FG
SP FG
CAP REV(L)
IC3302
IN 2
IN 1
Vref
OUT 2
OUT 1
V SEL
Q3301
CN3301
DDM REV
DDM FWD
DD MFG
DD ABS
60 DD MOTOR
M
IC3002
V SEL
Q3005
CN3003
CN2
LDM 2
LDM 1
55 LOADING MOTOR
M
CN3004
LSB
LSC
LSA
TO ROTARY ENCODER
TO REC SAFETY
CN3005
REC SAFE
START SENS Q3001
END SENS Q3002
TU REEL SENS PS3002
SUP REEL SENS PS3001
CAP MDA
M
CN3001
CAP REV(L)
CAP CTL V
CAP FG
DRUM MOTOR
M
CN1
FG/PG
V. CTL
CN4001
D3008
D3007
TP4001 CTL.P
78 DD SLOW
IC4103
Q4101
ES
SLOW_REV(H)
ES
Q4102
1/2_LP(H)
D4103
CN4101
CN4002
CFG IN
CTL COMP IN
CTL P
CAP PFV
CAP V CTL
CAP FG
IC3001
OSC1
OSC2
CF3001 MAIN CLK (10MHz)
X2
X1
X3001 TIMER CLK (32kHz)
D.FF
CTL CLOCK
RESET
IC3003
AL5.8V
RESET
TS CS
TM CLOCK
TS BUSY
IC7201
CS
CLOCK
BUSY
CF7201 CLK (6.00 MHz)
1
2
3
4
5
A
B
C
D
E
F
G
H

4.32 VIDEO BLOCK DIAGRAM


0 5 3D SVHS (VIDEO/ Y/C SEP)
IC1401
DFFI
VR
SDATA
SCLK
PS com/CNR
3L COMB
Y COMB
REC
PB
COUT
YOUT
FSCIN
CIN
VYIN
Q1406, L1404
L1405,
C1414 - C1418
Q1405
BPF
BUF
Q1408, L1406
C1421, C1422
Q1407
LPF
BUF
Q1404
BUF
Q1403, L1401
C1405 - C1407
C1409
Q1402
BPF
BUF
IC1006
AGC
BGP GEN
PHASE SHIFT
DET
PILOT DET
PILOT BLANK
OFF /ON
NOT USED
Q1006, Q1007
BUF
Q1012, Q1014,
Q1015
BUF
TP1001
FSC PHASE
Q1005
BUF
D1004
D1003
Q1010
ES
V.STB(L)
Q1021
BUF
IC1001
NOT USED
SECAM CONV.
BPF
CLAMP
3D ON/OFF
LPF2
EQ1
3DEE
3DPB
SW23
EE. SEP
SW21
PB3D
EE. SS
PS CONV
SW7
SW8
SW2
PB
EE
ATT
Sep
Com
SW1
AGC
DET
S. Sep
MIN
MAX
VREF
SW5
C. ADJ2
LIM
PB ON
LPF1
FBC
SW22
SS
3D
NOTCH
SW6
SW9
N. C
BB
SW11
MUTE
6dB
C.MUTE
CHARA DATA
CLAMP
FBC
BF
SW13
L-1 V IN
F-1 V IN
SW24
TU
L1004, C1011
FILTER
R1003, C1010
FILTER
SW14 PB
REC
N/S-LPF
SW4
SW3 VHS
SVHS
EQ
BUF
SW10
SW CTL
I²C Interface
to filter
CR adj
IC1002
R1010, R1012
C1041, C1043
EQ
R1011, R1013, R1014
C1042, C1044
EQ
R1017, R1018, R1020
C1048, C1049
EQ
R1016, R1019, R1021
C1047, C1050
EQ
EP
SP
REC
PB
NL PROCESS
CN1003
7 R1 Y IN ⓐ
5 R1 C IN ⓑ
3 R1 Y OUT ⓒ
1 R1 C OUT ⓓ
CN1001
2 D.FF ⓔ
9 V.REF ⓕ
3 I2C DATA ⓖ
5 I2C CLK ⓗ
17 C.SYNC ⓘ
19 FSC ⓙ
22 PB COLOR ⓚ
CN1002
26 REC C OUT ⓛ
23 V FROM OSD ⓜ
21 V TO OSD ⓝ
17 I2C CLK ⓞ
18 I2C DATA ⓟ
12 SVHS (L) ⓠ
15 Y FROM AV1 ⓡ
11 Y TO AV1 ⓢ
9 PB Y ⓣ
8 ME ALC DET ⓤ
7 TU V IN ⓥ
3 F V IN ⓦ
5
4
3
2
1
A
B
C
D
E
F
G
H


03 MAIN (VIDEO/ON SCREEN)
06 TERMINAL (ON SCREEN)
36 JACK
36 JACK
IC1
IC2
IC201
IC7131
IC7191
AUDIO SECTION
U. DRUM
VIDEO HEAD
SP CH2
SP CH1
LP CH2
LP CH1
CN1
TO SYSCON
VIDEO ENV
HEAD SELO
EE (L)
I2C DATA
I2C CLK
NOM/MESEC/S
OSD CS
OSD DATA
OSD CLK
TO SERVO
D.FF
FSC
C.SYNC/VREF
TO TUNER
VIDEO OSD OUT
TU VIDEO
TP111 D. FF
TP106 PB FM
Q15
L13. C79
Q13. Q14
Q16
Q17
Q152
Q1
Q38
Q6. Q153
ES
BUF
EQ
NOT USED
X1
CN7103
CN7104
CN7101
CN7105
S CLK
S DATA FRSYS
OSD CS
2FSC
VIDEO OUT
TU.I2C DATA
TU.I2C CLK
VIDEO OSD OUT
LINE VIDEO
TU VIDEO
J7194
FRONT S IN
CN7192
CN7191
FRONT-Y IN
FRONT-C IN
CN7151
Q7151
Q7152
J7152
REAR S OUT
SW7151
J7102
AV2/DECODER
J7101
AV1
V. OUT
V.GND
C/R
G
B
Y/V. IN
V. IN
Y/V. OUT
Q7131
CLAMP
INP SEL
I2C BUS CTL
CLK
DATA
I2C SCL
I2C SDA
CS
SCLK
SDATA
CV IN
CVOUT
XTAL IN
Q203
L202. C201
FILTER
C43
CN101
CN102
J7191
FRONT IN VIDEO
FRONT VIDEO
CN7162
Video AGC
ATT (-10dB)
YNR
DO
Y.LPF
Clamp
LPF
FBC/ALC
D.E.
N.C.
N.L. De.Emph
N.L. Emph
Main De.Emph
Main Emph Carrier Offset W.C/D.C
fo/Dev Adj
S-DET
Sub LPF
FM MOD
Ingtied LPF
7MHPF
1MHPF
DeMOD
DLIM
Edge Delay
DO Det
REC AGC Det
PB ALC
APT CTL
CLOCK DRIVER
MODE CTL
CCD
Sync.Sep.
Pulse Gen.
Feed Back Clamp
Video ALC
SQUELH
CLEAR SYNC
WHITE LIMITER
C.SQUELH
6dB AMP
CCD CTL
CCD LPF
VCA
Serial Cont Interface
2fsc VCO
fH LOCK CTL
Clock
CR Det. 2fsc
X-tal VCO/OSC
TANC
LEVEL Det
CLPF
Delay
Color Killer ID Det.
PB APC
REC APC
REC AFC
PB/REC Deori
ME SECAM DET
APC SW
ACC Det
1/2 Phase SW
DOWN Conv.
1/2 2FL VCO
4Phase Gen.
Main Conv2
Main Conv1
B.E
C.K
N→P
B.D
MIX LEVEL ADJ
BPF
CTL TRAP fH HPF
TRAP
ACC
2M LPF
HPF
COMP
SEP
L-SECAM
REC MUTE
FM AGC
829 TRAP
SQPB DL
P EQ
G EQ
DET
Head SW1
Head SW2
D.FF CTL
ENV DET
SP
EP
CH1
CH2
A.VCC
REC EQ
EP ON
SW1
REC ON
REC AMP
SW2
SP ON
MUTE CTL
Vcc
A
B
C
D
E
F
G
H
1
2
3
4
5

4.33 AUDIO BLOCK DIAGRAM


3 6 JACK
J7193 FRONT AUDIO IN(R)
J7192 FRONT AUDIO IN(L)
L7192, C7194
L7191, C7192
FILTER
CN7191
F.AUDIO(R)
F.AUDIO(L)
CN7162
0 3 MAIN (FMA/N.AUDIO/TERMINAL)
IC2201
INPUT SELECT (R-CH)
NOISE REDUCTION
PRE EMP
DE EMP
MOD
DE MOD
MIX
EVR /AGC
BPF
LIM
OUTPUT SELECT
NORMAL
R CH
L CH
NORMAL INPUT SELECT
LOG
INPUT SELECT (L-CH)
N DET
A.FF
DATA
CLK
MUTE(H)
TP2254 A. REC FM
TP2253 A. PB FM
IC2251
PRE
REC AMP
AGC
DET
TO AUDIO HEAD
CN1
CH1
CH2
TO TUNER
RF AUDIO
DEMOD(R)
DEMOD(L)
TU AUDIO
HR-S9500EH only
TO SYSCON
IND(R)
IND(L)
0 6 TERMINAL
J7102 AV2/DECODER
A.IN(L)
A.GND
A.IN(R)
A.OUT(L)
A.OUT(R)
IC7132
L7109, L7110 C7114, C7115 R7113, R7114
L7107, L7108 C7110, C7111 R7111, R7112
L7102, L7103 C7101, C7102 R7104, R7105
J7101 AV1
L7104, L7105 C7105, C7106 R7106, R7107
J7104 REAR AUDIO OUT(L)
L7113, C7120 R7116
J7103 REAR AUDIO OUT(R)
L7112, C7119 R7115
CN7102
CN7106
DEMOD(R)
DEMOD(L)
A.IN2(R)
A.IN2(L)
LINE OUT(L)
LINE OUT(R)
A.IN1(R)
A.IN1(L)
2 4 SPATIALIZER
IC2701
L RET
R RET
CN2702
CN2701
SPA.OUT(R)
SPA.OUT(L)
SPA.IN(R)
SPA.IN(L)
7 2 VSC
IC2501
VSC CLK
VSC DATA
CPU INTER-FACE
RAM INTER-FACE
CLOCK GEN
CF2501
D/A CONV
PROCESS
A/D CONV
SW
AMP
LPF
R2509 -R2511 C2511, C2512
LPF2501
CN2501
VSC AUDIO
NA PB
CN2101
IC1
NOT USED
MUTE CTL
DET
VCA
SP OFF
PRE AMP
REC ON
EP ON
REC EQ
R2003-R2005 C2003,C2004
R2007,C2009
A.FF
I2C DATA
I2C CLK
A ENV/ND(L)
A.MUTE(H)
N.REC ST(H)
N. REC(H)
FULL E ON(H)
TO SYSCON
Q2052-Q2055
POWER SW
OSC
Q2051
TRANS
T2051
Q2062, Q2063
Q2061
T2052
TP2034 F.ERASE
TP2033 A.ERASE
CN2002
TO FE HEAD
FE HEAD
CN2001
TO A/C HEAD
AE HEAD
REC/PB
1
2
3
4
5
A
B
C
D
E
F
G
H

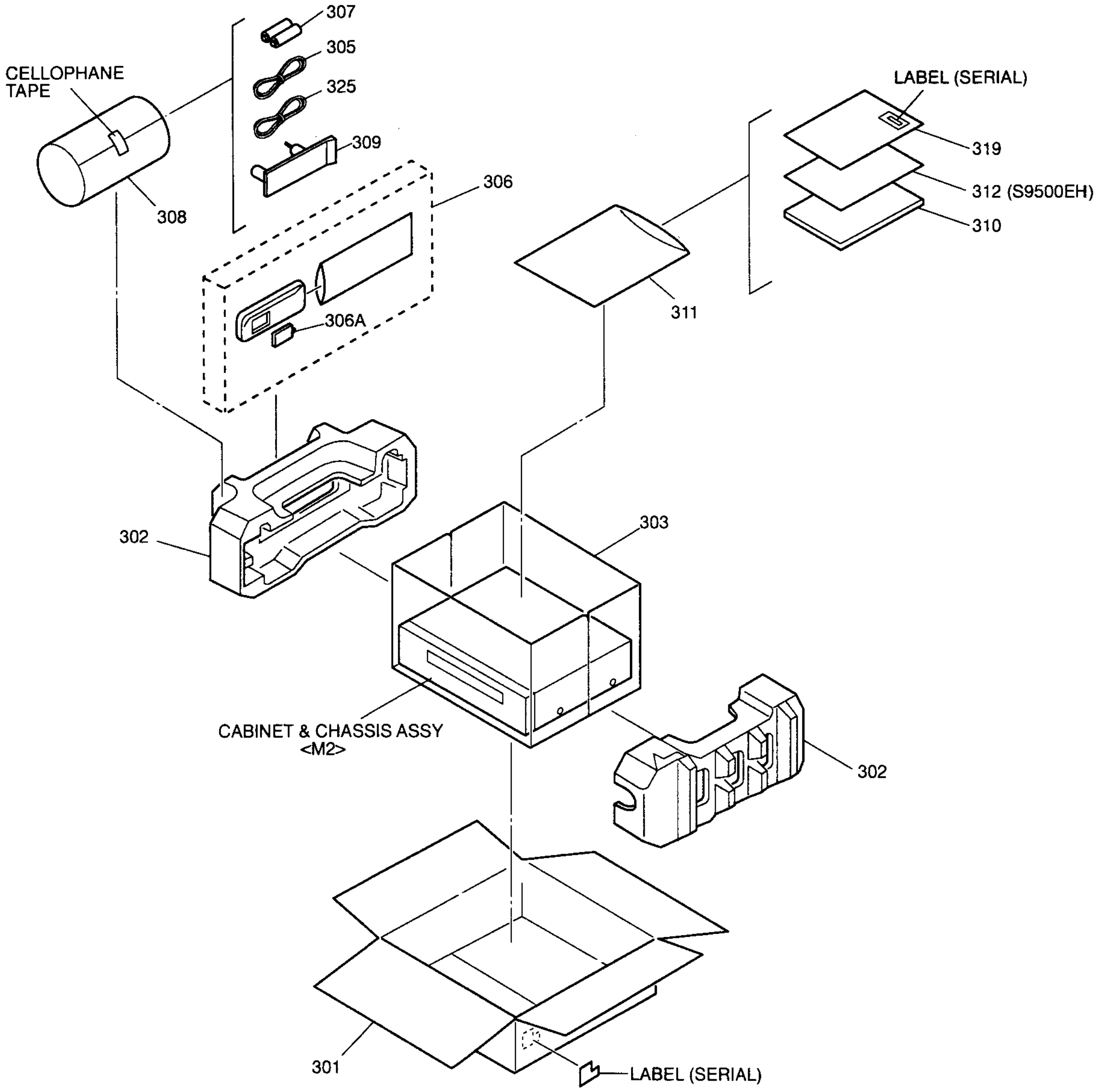
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.


307
305
325
309
306
306A
308
CELLOPHANE TAPE
LABEL (SERIAL)
319
312 (S9500EH)
310
311
303
302
CABINET & CHASSIS ASSY <M2>
302
301
LABEL (SERIAL)

****

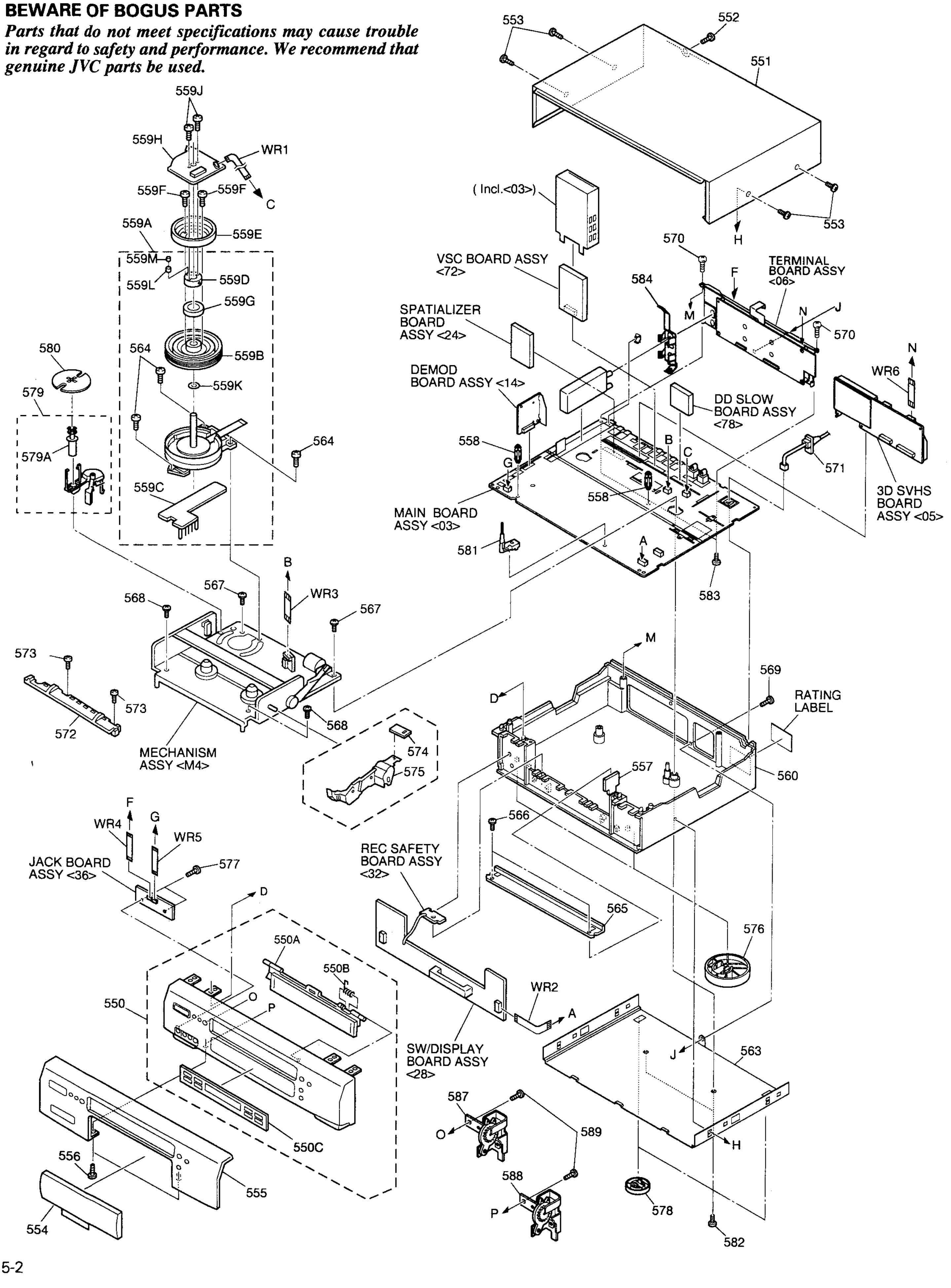
PACKING AND ACCESSORY ASSEMBLY <M1>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	301	LP30450-003A	PACKING CASE,S9500EH
		LP30450-005A	PACKING CASE,S9500E
	302	LP30430-001A	CUSHION ASSY
	303	PQM30021-95	POLY BAG
	305	PEAC0300-02	RF CABLE
	306	LP20465-003C	REMOTE CONTROLLER
	306A	LP40254-005A	COVER(BATTERY)
	307	-	BATTERY,X2(R6P TYPE)
	308	QPC02202215P	POLY BAG
	309	LP40164-002A	CAP,JACK(CONNECTOR COVER)
⚠	310	LPT0051-001B	INST.BOOK(EN)
⚠		LPT0051-002B	INST.BOOK(GE)
⚠		LPT0051-003B	INST.BOOK(FR)
⚠		LPT0051-004B	INST.BOOK(IT),S9500E
⚠		LPT0051-005B	INST.BOOK(SP),S9500EH
⚠		LPT0051-006B	INST.BOOK(DU)
⚠		LPT0051-007B	INST.BOOK(DA),S9500EH
⚠		LPT0051-008B	INST.BOOK(FI),S9500EH
⚠		LPT0051-009B	INST.BOOK(SW),S9500EH
⚠		LPT0051-010B	INST.BOOK(NO),S9500EH
⚠		LPT0051-011B	INST.BOOK(PT),S9500EH
⚠		LPT0051-012B	INST.BOOK(GR),S9500E
	311	QPC02503515P	POLY BAG
	312	PQ45146-148	SHEET(SPAIN),S9500EH
	319	BT-54008-1	GUARANTEE CARD
	325	PEAC0358-120	S CABLE

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

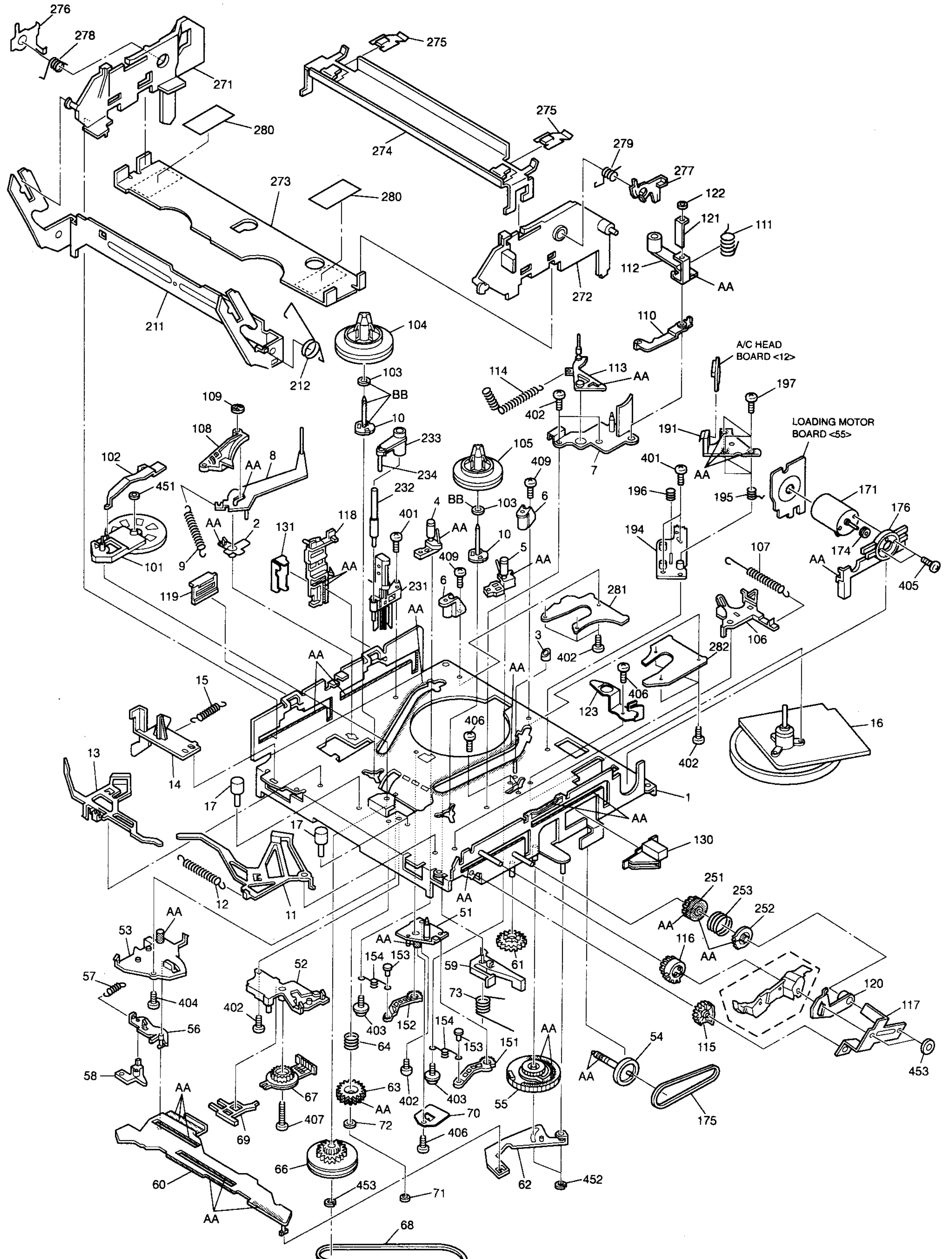
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.


553
552
551
553
H
(Incl.<03>)
VSC BOARD ASSY
<72>
SPATIALIZER
BOARD
ASSY <24>
DEMOD
BOARD ASSY <14>
570
584
F
M
TERMINAL
BOARD ASSY
<06>
N
J
570
N
WR6
DD SLOW
BOARD ASSY
<78>
B
C
558
G
558
MAIN BOARD
ASSY <03>
571
3D SVHS
BOARD
ASSY <05>
581
A
583
559J
559H
WR1
559F
559F
C
559A
559E
559M
559L
559D
559G
564
559B
580
579
559K
564
579A
559C
B
567
WR3
568
567
573
573
572
568
MECHANISM
ASSY <M4>
574
575
M
D
569
RATING
LABEL
557
560
F
G
WR4
WR5
JACK BOARD
ASSY <36>
577
D
566
REC SAFETY
BOARD ASSY
<32>
565
576
550A
550B
550
O
P
WR2
A
SW/DISPLAY
BOARD ASSY
<28>
J
563
587
O
589
550C
556
588
P
555
578
H
554
582

CABINET AND CHASSIS ASSEMBLY <M2>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	⚠	550	LP10088-004B	FRONT PANEL ASSY
		550A	LP20249-005B	C.H.DOOR
		550B	PQ46448	TORSION SPRING
		550C	LP20250-003A	DISPLAY WINDOW
	⚠	551	PQ11922-16-3	TOP COVER
		552	QYTDSF3010M	SCREW,TOP COVER(REAR)
		553	QYTDSF3010R	SCREW,X4 TOP COVER(SIDE)
		554	LP20255-002A	WINDOW(DOOR)
		555	LP20315-003A	COVER(F.P)ASSY,S9500EH
			LP20315-004A	COVER(F.P)ASSY,S9500E
		556	QYTDSF2608Z	SCREW,X2 COVER(FRONT PANEL)
		557	LP40441-001A	SPACER(MECHA)
		558	LP40226-001A	PC SUPPORT,X2
		559A	LP20319-004A	DRUM SUB ASSY
		559B	LP20030-009A	UPPER DRUM ASSY
		559C	LPA20002-01B	SENSOR BOARD ASSY
		559D	LP40028-001A	COLLAR ASSY
		559E	PDZ0179-2	ROTOR ASSY
		559F	QYSPSP3006Z	SCREW,X2
		559G	PDM4439	CAP
		559H	PDZ0181-2-2	STATOR ASSY
		559J	QYSPSP2606Z	SCREW,X2
		559K	PDM4444-19-2	WASHER
		559L	LP40323-001A	CONTACT
		559M	LP30004-005A	COMPRES. SPRING
	⚠	560	LP10140-003A	BOTTOM CHASSIS
	⚠	563	PQ11921-1-3	BOTTOM COVER
		564	QYTDST2610Z	SCREW,X3 DRUM
		565	LP30312-001B	BRACKET(CHASSIS)
		566	QYTDSF3010Z	SCREW,X2 BRACKET(CHASSIS)
		567	QYTDSF4012Z	SCREW,X2 MECHA
		568	QYTDSF3010Z	SCREW,X2 MECHA
		569	QYTDSF3010M	SCREW,TERMINAL
		570	QYTDSF3010Z	SCREW,X2 TERMINAL
	⚠	571	QMP4A10-170	POWER CORD
		572	LP30247-001B	FRONT BRACKET
		573	QYTDST2606Z	SCREW,X2 FRONT BRACKET
		574	LP40451-001A	SPACER(OPENER)
		575	LP20324-002C	DOOR OPENER
		576	PQ46617A	FOOT ASS'Y
		577	QYTDSF2608Z	SCREW,X2 JACK BOARD
		578	PQ35504-2	FOOT(2),x2
		579	LP40370-001B	ROLLER ARM ASSY
		579A	PDM4311A-1	ROLLER ASS'Y
		580	PQ45160	INERTIA PLATE
		581	LP40407-001A	KNOB ASSY
		582	QYTDSF3010Z	SCREW,X2 BOTTOM COVER
		583	QYTDSF3008Z	SCREW,X2 TERMINAL
		584	PQ21623-1-3	EARTH PLATE(RF)
		587	LP40158-001B	DAMPER ASSY,C.H.DOOR
		588	LP40158-002B	DAMPER ASSY,WINDOW(DOOR)
		589	SDSF2608Z	SCREW,X2 DAMPER ASSY
		WR1	QUQ212-0422CG	FFC WIRE,DRUM
		WR2	QUQ112-1214CG	FFC WIRE,DISPLAY
		WR3	WJT0005-002A	E-CARD WIRE,AC/HEAD
		WR4	QUQ212-0446CG	FFC WIRE,S.JACK
		WR5	QUQ212-0514CG	FFC WIRE,JACK
		WR6	QUQ112-0708CG	FFC WIRE,TERMINAL

5.3 MECHANISM ASSEMBLY <M4>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AA
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110
A/C HEAD BOARD <12>
103
BB
114
113
AA
197
109
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402
LOADING MOTOR BOARD <55>
108
233
105
191
102
8
AA
234
409
7
401
451
232
BB
103
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AA
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AA
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Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

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MECHANISM ASSEMBLY <M4>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
1	LP20228-003D	MAIN DECK ASSY
2	LP30232-002A	T.ARM BEARING
3	LP40097-001B	G.POLE CAP
4	LP40101-003A	P.BASE ASSY(S)
5	LP40104-002A	P.BASE ASSY(T)
6	LP30409-002A	UV CATCHER 2,X2
7	LP20234-001C	LID GUIDE
8	LP40108-001A	TENSION ARM ASSY
9	LP30003-010A	TENSION SPRING
10	LP40123-001A	REEL SHAFT,X2
11	LP40111-002B	MAIN BRAKE AY (TAKE-UP)
12	LP30003-002A	TENSION SPRING
13	LP40110-002D	MAIN BRAKE ASSY (SUPPLY)
14	LP30245-001C	REC SAFTY LEVER
15	LP30003-004A	TENSION SPRING
16	QAR0032-003	CAPSTAN MOTOR
17	PQ46302-1-3	ADJUST PIN,X2
51	LP30223-003B	L.A.GEAR SHAFT
52	LP20233-003B	R.ENCODER GUIDE
53	LP30226-003B	CTL.PLATE GUIDE
54	LP40120-001A	WORM GEAR
55	LP30229-001C	CTL.CAM
56	LP30249-003B	T.UP LEVER
57	LP30003-006A	TENSION SPRING
58	LP40119-002A	T.UP HEAD
59	LP40113-001A	C.BRAKE ASSY
60	LP10080-002F	CTL.PLATE
61	LP30237-002A	CASSETTE GEAR
62	LP40107-002A	LINK LEVER ASSY
63	LP40122-001B	DIRECT GEAR
64	LP40224-001B	COMPRESSION SPRING
66	LP40115-002C	CLUTCH UNIT
67	QSW0554-003	ROTARY ENCODER
68	LP30005-005A	BELT,CAPSTAN MOTOR
69	LP30235-002A	CHANGE LEVER
70	LP40379-001A	CTL BRACKET(1)
71	LP30016-001A	SLIT WASHER
72	LP30017-009A	SPACER,D.GEAR
73	LP40355-002A	TORSION SPRING
101	LP40114-002D	IDLER ARM ASSY
102	LP30236-002A	IDLER LEVER
103	LP30017-004A	SPACER,X2 REEL DISK
104	LP20237-001B	REEL DISK (SUPPLY)
105	LP20238-001B	REEL DISK (TAKE-UP)
106	LP40112-001E	S.BRAKE(T)ASSY
107	LP40357-001B	TENSION SPRING
108	LP40109-002C	T.BRAKE ASSY
109	PQ46302-1-3	ADJUST PIN
110	LP40149-001B	P.LEVER ASSY
111	LP40148-001A	TORSION SPRING
112	LP40105-001B	P.R.ARM ASSY
113	LP40106-001B	GUIDE ARM ASSY
114	LP40134-001B	TENSION SPRING
115	LP30243-001B	DRIVE GEAR
116	LP30242-001A	RELAY GEAR
117	LP40214-001A	C.H.BRACKET
118	LP30244-001C	GUIDE RAIL
119	LP40118-001A	RAIL CAP
120	LP30339-001A	OPENER GUIDE
121	LP40382-001A	P.R. SHEET
122	LP30016-002A	SLIT WASHER,P.R.ARM
123	LP30482-001A	P.ROLLER GUIDE
130	LP30493-001A	START SENSOR CAP
131	LP40457-001A	END SENSOR SHEET2
151	LP40103-002A	L.ARM GEAR(T)
152	LP30224-001A	L.ARM GEAR(S)
153	LP40100-001A	PIN,L.ARM(T)
	LP40100-001A	PIN,L.ARM(S)
154	LP40099-001A	TORSION ARM,L.ARM GEAR(T)
	LP40099-001A	TORSION ARM,L.ARM GEAR(S)
171	QAR0023-001	LOADING MOTOR
174	PQ43546-1-2	MOTOR PULLEY
175	LP30005-003A	BELT,LOADING MOTOR
176	LP30230-001B	MOTOR GUIDE
191	QAH0010-003	AC HEAD
194	LP30228-001A	HEAD BASE
195	LP30004-012A	COMPRES. SPRING,X3
196	LP40236-001A	COMPRESSION SPRING
197	LP40213-002B	SPECIAL SCREW,X3
211	LP20240-001B	DRIVE ARM
212	LP40137-001A	TORSION SPRING
231	NAH0001-001	FULL ERASE HEAD
232	LP40098-001B	GUIDE POLE(S)
233	LP30459-001A	TENSION STUD BASE
234	LP40367-001A	TENSION STUD
251	LP30239-002E	LIMIT GEAR(1)
252	LP30240-002C	LIMIT GEAR(2)
253	LP40136-001D	TORSION SPRING
271	LP10081-001D	SIDE HOLDER(L)
272	LP40403-001C	S.HOLDER(R)ASSY
273	LP30257-001C	CASSETTE HOLDER
274	LP20241-001C	TOP PLATE
275	LP30258-001B	SPRING PLATE
276	LP30255-001G	LOCK LEVER(L)
277	LP30256-001E	LOCK LEVER(R)
278	LP40168-001A	TOR.SPRING(L)
279	LP40218-001B	TOR.SPRING(R)
280	LP30019-006C	PAD,X2
281	LP40275-001A	PLATE(S)
282	LP40276-001A	PLATE(T)
401	QYTDST2608Z	SCREW,FE HEAD
	QYTDST2608Z	SCREW,X2 HEAD BASE
402	QYTDST2606Z	SCREW,X6 PLATE(S.T)
	QYTDST2606Z	SCREW,L.A.GEAR SHAFT
	QYTDST2606Z	SCREW,R.ENCODER GUIDE
	QYTDST2606Z	SCREW,X2 LID GUIDE
403	QYSPSTG2606Z	SCREW,POLE BASE(S)
	QYSPSTG2606Z	SCREW,POLE BASE(T)
404	QYTPST2605Z	SCREW,C.P.GUIDE
405	QYTPSP3003Z	SCREW,X2 LOADING MOTOR
406	QYTDSF2608M	SCREW,CTL BRACKET(1)
	QYTDSF2608M	SCREW,X3 CAPSTAN MOTOR
407	QYTPST2620Z	SCREW,ROTARY ENCODER
409	QYTPST2606Z	SCREW,X2 UV CATCHER
451	LP30016-001A	SLIT WASHER,IDLER ARM
452	PQM30017-24	SLIT WASHER,GTL CAM
	PQM30017-24	SLIT WASHER,LINK LEVER
453	PQM30017-47	SLIT WASHER,CLUTCH
	PQM30017-47	SLIT WASHER,C.H.BRACKET

5.4 ELECTRICAL PARTS LIST

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MAIN BOARD ASSEMBLY <03>

⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PW1	LPA10014-54C	MAIN BOARD ASSY,S9500EH
	LPA10014-55C	MAIN BOARD ASSY,S9500E
IC1	JCP8016-MSB	IC
IC2	MM1113XF	IC
IC2201	AN3665FB-A	IC
⚠ IC2251	AN3328S	IC
IC3001	HD6433929TB39F	QFP IC (MCU)
IC3002	TA7291S	IC
IC3003	S-80728AN-DR-X	IC
	or S-80828ANUP-W	IC
IC3004	M24C08-BN6	IC
	or AT24C08-10PC	IC
	or X24C08P	IC
	or 24LC08B/P	IC
IC3301	HD6433926TB42F	QFP IC (MCU)
IC3302	TA7291S	IC
IC4001	BU2885CS	IC
IC6080	BA15218F-XE	IC
IC7201	UPD754302GS100X	IC(μ C ROM)
Q1	2SA1576A/QR/-X	TRANSISTOR
Q2	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q6	2SB1218A/QR/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q13	2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
Q14	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q15	2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576A/QR/-X	TRANSISTOR
Q16	UN511E	TRANSISTOR
	or RN2309	TRANSISTOR
	or DTA144WU	TRANSISTOR
Q17	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q18	UN521E	TRANSISTOR
	or RN1309	TRANSISTOR
	or DTC144WU	TRANSISTOR
Q38	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q47	2SK433/D/-W	JUNCTION FET
Q48	2SK433/D/-W	JUNCTION FET
Q102	UN521E	TRANSISTOR
	or DTC144WU	TRANSISTOR
	or RN1309	TRANSISTOR
Q152	2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SA1576A/QRS/-X	TRANSISTOR
Q153	2SD1819A/QRS/-X	TRANSISTOR
	or 2SC4081/QRS/-X	TRANSISTOR

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION
		or 2PC4081/R/-X	TRANSISTOR
	Q401	2SA1576A/QR/-X	TRANSISTOR
	Q402	UN521E	TRANSISTOR
		or DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
	Q403	UN521E	TRANSISTOR
		or RN1309	TRANSISTOR
		or DTC144WU	TRANSISTOR
	Q404	2SA1576A/QR/-X	TRANSISTOR
	Q405	2SA1576A/QR/-X	TRANSISTOR
	Q2001	2SC4081/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
	Q2002	2SC4081/QRS/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
	Q2003	DTA144WU	TRANSISTOR
		or RN2309	TRANSISTOR
		or UN511E	TRANSISTOR
	Q2051	2SC4081/QRS/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
	Q2052	2SA1576A/QR/-X	TRANSISTOR
		or 2PA1576/R/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
	Q2053	DTC144WU	TRANSISTOR
		or UN521E	TRANSISTOR
		or RN1309	TRANSISTOR
	Q2054	2SA1576A/QR/-X	TRANSISTOR
		or 2PA1576/R/-X	TRANSISTOR
		or 2SB1218A/QR/-X	TRANSISTOR
	Q2055	DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
	Q2061	2SC4081/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
	Q2062	DTA114EU	TRANSISTOR
		or RN2302	TRANSISTOR
		or UN5111	TRANSISTOR
	Q2063	DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
	Q2102	DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
	Q2251	DTA144WU	TRANSISTOR
		or RN2309	TRANSISTOR
		or UN511E	TRANSISTOR
	Q2253	DTC144WU	TRANSISTOR
		or RN1309	TRANSISTOR
		or UN521E	TRANSISTOR
	Q2254	DTC114EU	TRANSISTOR
		or RN1302	TRANSISTOR
		or UN5211	TRANSISTOR
	Q2255	DTA144WU	TRANSISTOR
		or RN2309	TRANSISTOR
		or UN511E	TRANSISTOR
	Q2711	2SC4081/QRS/-X	TRANSISTOR
		or 2SD1819A/QRS/-X	TRANSISTOR
		or 2PC4081/R/-X	TRANSISTOR

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		Q2712	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q2713	DTA114EU	TRANSISTOR
			or RN2302	TRANSISTOR
			or UN5111	TRANSISTOR
		Q2714	DTC144WU	TRANSISTOR
			or RN1309	TRANSISTOR
			or UN521E	TRANSISTOR
		Q3001	PTZ-NV16	PHOTO TRANSISTOR
			or PTZ-NV09	PHOTO TRANSISTOR
		Q3002	PTZ-NV16	PHOTO TRANSISTOR
			or PTZ-NV09	PHOTO TRANSISTOR
		Q3003	2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q3005	2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
		Q3006	UN521E	TRANSISTOR
			or RN2309	TRANSISTOR
			or DTC144WU	TRANSISTOR
		Q3301	2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q4001	DTC114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or UN5211	TRANSISTOR
		Q4002	DTC114EU	TRANSISTOR
			or UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
		Q5101	2SK2632-CB14	POWER MOS FET
			or 2SK2666F04	FE TRANSISTOR
			or 2SK2129-LT	POWER MOS FET
			or 2SK2129	POWER MOS FET
			or 2SK2632	POWER MOS FET
		Q5102	2SD2144S/UV/-T	TRANSISTOR
		Q5301	2SB1256	TRANSISTOR
		Q5302	UN5215	TRANSISTOR
			or DTC114TU	TRANSISTOR
		Q5303	2SB1256	TRANSISTOR,S9500E
		Q5304	UN5211	TRANSISTOR
			or RN1302	TRANSISTOR
			or DTC114EU	TRANSISTOR
		Q5305	2SC1740S/RS/-T	TRANSISTOR
			or 2SC3199/YG/-T	TRANSISTOR
		Q5306	2SD2144S/UVW/-T	TRANSISTOR
		Q5312	2SA1745/6-7/-X	TRANSISTOR,S9500E
		Q5313	UN5211	TRANSISTOR,S9500E
			or RN1302	TRANSISTOR,S9500E
			or DTC114EU	TRANSISTOR,S9500E
		Q5314	2SA1576A/RS/-X	TRANSISTOR,S9500E
			or 2SB1218A/RS/-X	TRANSISTOR,S9500E
		Q5315	2SD2061/F/	TRANSISTOR
		Q5316	2SD1819A/RS/-X	TRANSISTOR
			or 2SC4081/RS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q5317	2SD2061/F/	TRANSISTOR
		Q5318	2SD1819A/RS/-X	TRANSISTOR
			or 2SC4081/RS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q5320	UN5111	TRANSISTOR
			or RN2302	TRANSISTOR
			or DTA114EU	TRANSISTOR
		Q5321	UN5111	TRANSISTOR,S9500E
			or RN2302	TRANSISTOR
			or DTA114EU	TRANSISTOR
		Q5322	2SD1450/ST/-T	TRANSISTOR
			or 2SD1302/ST/-T	TRANSISTOR
		Q5323	2SD2375/QP/	TRANSISTOR
		Q5451	2SB927/ST/-T	TRANSISTOR
		Q5452	DTC144EU	TRANSISTOR
		Q6001	2SC3068	TRANSISTOR
		Q6030	2SB1218A/RS/-X	TRANSISTOR
			or 2SA1576A/RS/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q6031	DTC114EU	TRANSISTOR
			or RN1302	TRANSISTOR
			or UN5211	TRANSISTOR
		D2001	1N4148M	DIODE
			or 1SS133	DIODE
		D2201	11ES2	DIODE
		D2253	DAP202U	DIODE
		D3001	LNB2301L01VI	LE DIODE
		D3002	11ES2	DIODE
		D3003	11ES2	DIODE
		D3005	RD39ES/B3/-T2	ZENER DIODE
			or MTZJ39C	ZENER DIODE
			or UZ39BSC	ZENER DIODE
		D3007	1SS133	DIODE
			or 1N4148M	DIODE
		D3008	1SS133	DIODE
			or 1N4148M	DIODE
		D3009	1SS133	DIODE
			or 1N4148M	DIODE
		D3013	1SS133	DIODE
			or 1N4148M	DIODE
		D3014	1SS133	DIODE
			or 1N4148M	DIODE
		D5001	S1WB(A)60F4102	BRIDGE DIODE
			or S1WB(A)60F4072X	BRIDGE DIODE
			or S1WB(A)60F4062X	BRIDGE DIODE
		D5101	AU01	FR DIODE
			or PG104RS	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or ERA18-04-T2	FR DIODE
			or 10ELS4	FR DIODE
		D5102	AU01	FR DIODE
			or ERA18-04-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS4	FR DIODE
			or PG104RS	FR DIODE
		D5103	1N4148M	DIODE
			or 1SS133	DIODE
		D5105	1SS133	DIODE,S9500E
		D5201	ERA18-02-T2	FR DIODE
			or 1SR153-400-T2	FR DIODE
		D5202	FML-12S	FR DIODE
			or FCF06A20	FR DIODE
			or MA644	FR DIODE
			or YG901C2	FR DIODE
		D5206	FMB-24	BARRIER DIODE

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	or F5KQ40B	BARRIER DIODE	
	or YG801C04	SB DIODE	
	or MA7D49	SB DIODE	
D5209	10ELS2	FR DIODE	
	or 1SR153-400-T2	FR DIODE	
	or ERA18-02-T2	FR DIODE	
	or PG104RS	FR DIODE	
D5210	AU01Z	FR DIODE	
	or ERA18-02-T2	FR DIODE	
	or PG104RS	FR DIODE	
	or 10ELS2	FR DIODE	
	or 1SR153-400-T2	FR DIODE	
D5211	AU01Z	FR DIODE	
	or PG104RS	FR DIODE	
	or 10ELS2	FR DIODE	
	or ERA18-02-T2	FR DIODE	
	or 1SR153-400-T2	FR DIODE	
D5301	UZ15BSA	ZENER DIODE	
	or MTZJ15A	ZENER DIODE	
	or RD15ES/B1/-T2	ZENER DIODE	
D5302	11ES2	DIODE	
	or ERA15-02-T2	DIODE	
D5303	UZ12BSC	ZENER DIODE	
	or RD12ES/B3/-T2	ZENER DIODE	
	or MTZJ12C	ZENER DIODE	
D5304	1N4148M	DIODE	
	or 1SS133	DIODE	
D5305	UZ30BSA	ZENER DIODE	
	or RD30ES/B1/-T2	ZENER DIODE	
	or MTZJ30A	ZENER DIODE	
D5307	UZ6.2BSC	ZENER DIODE	
	or RD6.2ES/B3/-T2	ZENER DIODE	
	or MTZJ6.2C	ZENER DIODE	
D5308	1SS133	DIODE,S9500E	
D5311	RD5.1JS/B2/-T2	ZENER DIODE	
	or MA4051N/M/-T2	ZENER DIODE	
D5312	1N4148M	DIODE	
	or 1SS133	DIODE	
D5313	RD5.1JS/B2/-T2	ZENER DIODE	
D5314	1SS133	DIODE	
D5321	DAN202U	DIODE,S9500E	
D5351	11E2-T5	DIODE	
D5352	11E2-T5	DIODE	
D5353	11E2-T5	DIODE	
D5354	11E2-T5	DIODE	
D6001	MTZJ10B	ZENER DIODE	
D6002	HZ30-2L-T2	ZENER DIODE	
	or HZ30-2LTD	Z DIODE (M)	
R1	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R2	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
R3	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R4	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
R5	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R6	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
R7	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R9	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
R10	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R11	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R13	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R14	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R15	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R16	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R17	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R18	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R19	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R24	NRVA02D-622X	CMF RESISTOR	6.2kΩ,1/10W
R25	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W
R46	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R47	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R48	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R49	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R50	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R52	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R54	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R55	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R56	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R57	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R62	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R63	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
R68	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R69	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R71	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R72	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R73	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
R94	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
R120	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R121	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R122	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R123	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R133	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
R137	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R138	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
R143	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R158	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R168	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R169	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R192	NRSA02J-106X	RESISTOR	10MΩ,1/10W
R193	NRSA02J-475X	MG RESISTOR	4.7MΩ,1/10W
R401	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
R402	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R403	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
R404	NRSA02J-683X	MG RESISTOR	68kΩ,1/10W
R405	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
R408	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
R409	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
R410	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R2001	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R2002	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R2003	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
R2004	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
R2005	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
R2006	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
R2007	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R2009	NRSA02J-101X	MG RESISTOR,S9500EH	100Ω,1/10W
R2013	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R2016	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2053	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
R2054	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
R2056	QRE141J-101Y	RESISTOR	100Ω,1/4W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2061	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R2062	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R2063	NRSA02J-151X	MG RESISTOR	150Ω,1/10W
		R2101	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2102	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2105	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R2201	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R2202	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R2203	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2204	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2205	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2206	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2207	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2208	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2209	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2210	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2211	NRSA02J-511X	MG RESISTOR	510Ω,1/10W
		R2213	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2214	NRSA02J-511X	MG RESISTOR	510Ω,1/10W
		R2215	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2216	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2217	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2218	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2219	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2220	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2221	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2222	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R2223	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R2224	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R2225	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2226	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2228	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2229	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2232	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2233	NRSA02J-823X	MG RESISTOR	82kΩ,1/10W
		R2251	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2253	NRSA02J-270X	MG RESISTOR	27Ω,1/10W
		R2254	NRSA02J-220X	MG RESISTOR	22Ω,1/10W
		R2256	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R2257	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2258	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2259	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R2711	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2712	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2713	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2714	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2715	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2716	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3001	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3002	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3003	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3004	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3010	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R3014	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3015	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3016	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3017	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3018	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3019	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3020	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3021	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3022	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3023	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3024	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3025	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R3031	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3032	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3033	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3034	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3035	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3036	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3037	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3038	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3039	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3040	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R3041	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3042	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3043	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3044	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3045	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3046	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3047	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3048	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3049	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3050	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3051	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3052	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3053	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3054	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R3055	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3056	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3057	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R3058	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3059	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R3060	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3061	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3062	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3064	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3067	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3068	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3069	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R3070	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R3071	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3073	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3074	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3075	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3076	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3077	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3078	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3079	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3080	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R3201	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
		R3203	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R3204	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R3205	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3206	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3207	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3209	QRE141J-181Y	RESISTOR	180Ω, 1/4W

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R3210	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
R3212	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
R3213	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
R3214	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
R3215	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
R3220	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3223	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3224	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3225	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
R3226	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3227	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
R3228	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
R3229	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W
R3230	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3231	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3232	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3233	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3234	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3235	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R3236	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R3237	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3238	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3239	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3240	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3241	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3242	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3243	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3246	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3250	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3252	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3255	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3256	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
R3257	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
R3258	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R3259	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
R3260	NRSA02J-103X	RESISTOR	10kΩ,1/10W
R3301	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3303	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3304	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3310	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R3314	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3315	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3316	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3317	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R3318	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3319	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3320	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3321	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
R3322	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3323	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3324	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3325	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R3326	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R3327	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
R3331	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3343	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3344	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3345	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R3346	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	R3347	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3348	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3349	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3350	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3351	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3352	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3353	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3354	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R3355	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
	R3356	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
	R3357	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3358	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3359	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3360	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3361	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3362	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3364	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3365	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3366	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R3367	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3368	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3369	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3370	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R3371	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3373	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3374	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R3375	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R3376	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3377	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3378	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3379	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3380	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3501	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3502	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3503	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3504	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3505	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3506	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R3508	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3510	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R3511	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
	R3512	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
	R3513	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
	R3514	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
	R3515	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
	R3516	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
	R4001	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R4003	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	R4005	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R4007	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
	R4008	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
	R4009	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R4011	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R4012	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R4013	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R4015	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R5101	QRE141J-334Y	RESISTOR	330kΩ,1/4W
	R5102	QRE141J-334Y	RESISTOR	330kΩ,1/4W
	R5103	QRE141J-683Y	RESISTOR	68kΩ,1/4W
	R5104	QRG029J-154G	OMF RESISTOR	150kΩ,2W
	R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R5107	QRE121J-331Y	RESISTOR	330Ω,1/2W
	R5108	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R5109	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
	R5110	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
	R5111	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
	R5112	QRE141J-221Y	RESISTOR,S9500E	220Ω,1/4W
	R5301	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
	R5302	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
	R5303	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
	R5304	NRSA02J-3R9X	MG RESISTOR	3.9Ω,1/10W
	R5305	QRE141J-102Y	RESISTOR,S9500E	1kΩ,1/4W
	R5307	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R5308	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
	R5309	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R5310	NRSA02J-472X	MG RESISTOR,S9500E	4.7kΩ,1/10W
	R5311	NRSA02J-222X	MG RESISTOR,S9500E	2.2kΩ,1/10W
	R5312	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R5313	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
⚠	R5314	QRZ9005-470X	FUSI RESISTOR	47Ω,1/4W
	R5315	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	R5316	QRA14CF-2211Y	CMF RESISTOR	2.21kΩ,1/4W
	R5317	QRA14CF-3481Y	CMF RESISTOR	3.48kΩ,1/4W
	R5319	QRE141J-511Y	RESISTOR	510Ω,1/4W
	R5320	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R5328	QRE141J-331Y	RESISTOR	330Ω,1/4W
	R5330	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
	R5331	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
	R5332	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
	R5335	NRSA02J-472X	MG RESISTOR,S9500E	4.7kΩ,1/10W
	R5336	NRSA02J-222X	MG RESISTOR,S9500E	2.2kΩ,1/10W
	R5337	NRSA02J-222X	MG RESISTOR,S9500E	2.2kΩ,1/10W
	R5338	NRSA02J-273X	MG RESISTOR,S9500E	27kΩ,1/10W
	R5339	NRSA02J-273X	MG RESISTOR,S9500E	27kΩ,1/10W
	R5340	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R5341	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R5342	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R5343	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R5344	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R5345	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R5346	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R5347	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R5348	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R5349	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R5350	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
	R5351	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R5352	NRSA02J-473X	MG RESISTOR,S9500E	47kΩ,1/10W
	R5451	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R5452	QRE123J-331X	RESISTOR	330Ω,1/2W
	R6001	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
	R6002	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R6020	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R6021	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R6022	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R6023	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R6030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R6032	NRSA02J-472X	MG RESISTOR,S9500EH	4.7kΩ,1/10W
	R6033	NRSA02J-182X	MG RESISTOR,S9500EH	1.8kΩ,1/10W
	R6051	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R6052	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R6053	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R6054	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R6071	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R6084	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
	R6085	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R7168	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
	R7201	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
	R7221	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R7236	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R7241	NRSA02J-103X	RESISTOR	10kΩ,1/10W
	VR2251	QVPA606-102Z	V RESISTOR,FMA REC FM	
	C1	QEKC1CM-106	E CAPACITOR	10μF,16V
	C3	NCF21CZ-105X	CAPACITOR	1μF,16V
	C5	NCF21CZ-105X	CAPACITOR	1μF,16V
	C6	NCB11EK-104X	CAPACITOR	0.1μF,25V
	C7	QEKC0JM-107	E CAPACITOR	100μF,6.3V
	C9	NCF21CZ-105X	CAPACITOR	1μF,16V
	C11	NCF21CZ-105X	CAPACITOR	1μF,16V
	C12	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C13	QEKC1HM-335	E CAPACITOR	3.3μF,50V
	C14	NCB21EK-333X	CAPACITOR	0.033μF,25V
	C16	NCF21CZ-105X	CAPACITOR	1μF,16V
	C20	NCF21CZ-225X	CAPACITOR	2.2μF,16V
	C21	NCB21CK-563X	CAPACITOR	0.056μF,16V
	C23	NCB21HK-223X	CAPACITOR	0.022μF,50V
	C24	NCB21CK-474X	CAPACITOR	0.47μF,16V
	C25	NCB21CK-104X	CAPACITOR	0.1μF,16V
	C27	NDC21HJ-101X	CAPACITOR	100pF,50V
	C29	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
	C30	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
	C31	NCB21HK-223X	CAPACITOR	0.022μF,50V
	C32	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C34	NCB21EK-473X	CAPACITOR	0.047μF,25V
	C37	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
	C41	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C42	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C43	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C44	NDC21HJ-101X	CAPACITOR,S9500E	100pF,50V
	C45	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C46	NDC21HJ-101X	CAPACITOR	100pF,50V
	C47	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C48	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
	C49	NDC21HJ-221X	CAPACITOR	220pF,50V
	C54	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C55	QEKJ1CM-106	E CAPACITOR	10μF,16V
	C56	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
	C57	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C58	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C59	NCB21EK-473X	CAPACITOR	0.047μF,25V
	C62	NCF21CZ-334X	CAPACITOR	0.33μF,16V
	C63	NDC21HG-151X	CAPACITOR	150pF,50V
	C64	QEKJ0JM-227	E CAPACITOR	220μF,6.3V
	C65	NCB21EK-104X	CAPACITOR	0.1μF,25V
	C73	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C74	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	C76	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C77	NDC21HJ-270X	CAPACITOR	27pF,50V
	C79	NDC21HJ-120X	CAPACITOR	12pF,50V
	C85	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C86	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
	C87	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C88	NCB21HK-103X	CAPACITOR	0.01μF,50V
	C89	NCB21HK-103X	CAPACITOR	0.01μF,50V

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	C90	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C91	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C92	NDC21HJ-120X	CAPACITOR	12pF,50V
	C98	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C105	QDYB1CM-103Y	CAPACITOR	0.01µF,16V
	C107	NDC21HJ-5R0X	CAPACITOR	5pF,50V
	C108	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C118	NCB21CK-474X	CAPACITOR	0.47µF,16V
	C127	NCB21CK-474X	CAPACITOR	0.47µF,16V
	C133	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C134	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C141	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C143	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
	C164	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	C165	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	C172	QDX11EK-104	CAPACITOR	0.1µF,25V
	C173	NDC21HJ-220X	CAPACITOR	22pF,50V
	C401	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C402	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C403	NDC21HJ-150X	CAPACITOR	15pF,50V
	C404	NCB21HK-102X	CAPACITOR	0.001µF,50V
	C406	NDC21HJ-470X	CAPACITOR	47pF,50V
	C407	NCB21HK-223X	CAPACITOR	0.022µF,50V
	C408	NDC21HJ-121X	CAPACITOR	120pF,50V
	C409	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2002	QEKJ1CM-476	E CAPACITOR	47µF,16V
	C2003	NCB21HK-123X	CAPACITOR	0.012µF,50V
	C2004	QEKJ1CM-226	E CAPACITOR	22µF,16V
	C2005	NCB21HK-102X	CAPACITOR	0.001µF,50V
	C2006	NCB21HK-331X	CAPACITOR	330pF,50V
	C2007	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2008	NCB21HK-152X	CAPACITOR	0.0015µF,50V
	C2009	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2010	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2011	NCB21EK-333X	CAPACITOR,S9500EH	0.033µF,25V
	C2013	NCB21EK-333X	CAPACITOR	0.033µF,25V
	C2015	QEKJ1CM-226	E CAPACITOR	22µF,16V
	C2016	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2051	NCB21HK-331X	CAPACITOR	330pF,50V
	C2052	QFLC1HJ-333Z	F CAPACITOR	0.033µF,50V
	C2053	NCB21HK-332X	CAPACITOR	0.0033µF,50V
	C2054	NCB21EK-103X	CAPACITOR	0.01µF,25V
	C2055	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2061	QFLC1HJ-333Z	F CAPACITOR	0.033µF,50V
	C2062	NCB21HK-332X	CAPACITOR	0.0033µF,50V
	C2063	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2064	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2101	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2102	QEKJ1CM-226	E CAPACITOR	22µF,16V
	C2103	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C2202	QETC1CM-226Z-E	E CAPACITOR	22µF,16V
	C2205	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C2207	NCB21CK-473X	CAPACITOR	0.047µF,16V
	C2208	QETC1CM-476	E CAPACITOR	47µF,16V
	C2209	QETC1HM-225	E CAPACITOR	2.2µF,50V
	C2210	QETC1CM-476	E CAPACITOR	47µF,16V
	C2211	NCB21HK-153X	CAPACITOR	0.015µF,50V
	C2212	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2213	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2214	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2215	QEKJ1HM-224	E CAPACITOR	0.22µF,50V
	C2216	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
	C2217	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2218	NCB21HK-153X	CAPACITOR	0.015µF,50V
	C2219	QETC1CM-476	E CAPACITOR	47µF,16V
	C2220	QETC1HM-225	E CAPACITOR	2.2µF,50V
	C2221	NCB21CK-473X	CAPACITOR	0.047µF,16V
	C2222	QEKJ1CM-476	E CAPACITOR	47µF,16V
	C2224	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C2227	QEKJ1HM-224	E CAPACITOR	0.22µF,50V
	C2228	QEKJ1CM-476	E CAPACITOR	47µF,16V
	C2229	QEKJ1CM-226	E CAPACITOR	22µF,16V
	C2230	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C2231	QTE1H11-106Z	E CAPACITOR	10µF
	C2232	QTE1H11-106Z	E CAPACITOR	10µF
	C2233	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C2234	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C2236	QTE1C40-476	E CAPACITOR	47µF
	C2239	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C2251	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2252	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2253	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2254	QEKJ1CM-476	E CAPACITOR	47µF,16V
	C2255	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C2256	NDC21HJ-101X	CAPACITOR	100pF,50V
	C2257	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2258	NCB21HK-223X	CAPACITOR	0.022µF,50V
	C2259	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C2260	NDC21HJ-221X	CAPACITOR	220pF,50V
	C2261	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3001	QEKJ1CM-336	E CAPACITOR	33µF,16V
	C3004	QEZ0244-229	EDL CAPACITOR	0.0022F
	C3006	NCB21CK-473X	CAPACITOR	0.047µF,16V
	C3012	NDC21HJ-102X	CAPACITOR	0.001µF,50V
	C3015	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C3016	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3017	NDC21HJ-180X	CAPACITOR	18pF,50V
	C3018	QAT7001-450Z	TRIM CAPACITOR,TIMER CLOCK	
	C3022	NCB21CK-473X	CAPACITOR	0.047µF,16V
	C3025	QEKJ1HM-106	E CAPACITOR	10µF,50V
	C3026	NCB21HK-103X	CAPACITOR	0.01µF,50V
	C3027	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C3034	NCB21HK-221X	CAPACITOR	220pF,50V
	C3042	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	C3043	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	C3302	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C3303	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C3306	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C3307	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C4001	NDC21HJ-101X	CAPACITOR	100pF,50V
	C4002	NCB21HK-102X	CAPACITOR	0.001µF,50V
	C4003	NCB21HK-102X	CAPACITOR	0.001µF,50V
	C4004	NCB21HK-102X	CAPACITOR	0.001µF,50V
	C4005	NDC21HJ-470X	CAPACITOR	47pF,50V
	C4006	QEKJ1HM-105	E CAPACITOR	1µF,50V
	C4007	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C4008	NCB21EK-103X	CAPACITOR	0.01µF,25V
	C4010	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C4011	QEKJ0JM-107	E CAPACITOR	100µF,6.3V
	C4013	QEKJ1CM-106	E CAPACITOR	10µF,16V
	C4014	NCB21EK-223X	CAPACITOR	0.022µF,25V
	C4015	NCB21HK-222X	CAPACITOR	0.0022µF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C4018	NDC21HJ-221X	CAPACITOR	220pF,50V
		C4019	NCB21EK-223X	CAPACITOR	0.022μF,25V
	⚠	C5001	QFZ9051-683	F CAPACITOR	0.068μF,250V
	⚠	C5002	QFZ9051-333	F CAPACITOR	0.033μF,250V
	⚠	C5005	QCZ9071-222	CAPACITOR	0.0022μF,400V
		C5006	QEZ0374-686	E CAPACITOR	68μF,400V
		C5101	QCZ0212-472	CAPACITOR	0.0047μF,1kV
		C5102	QCZ0302-330Z	CAPACITOR	33pF,1kV
		C5104	QETC1HM-105	E CAPACITOR	1μF,50V
		C5105	QFN31HJ-183	F CAPACITOR	0.018μF,50V
		C5106	QCBB1HJ-271	CAPACITOR	270pF,50V
		C5107	QFVF1HJ-104Z	F CAPACITOR	0.1μF,50V
		C5201	QEMU0JM-227	E CAPACITOR	220μF,6.3V
		C5202	QEMT1CM-128	E CAPACITOR	1200μF,16V
		C5203	QETC1CM-227	E CAPACITOR	220μF,16V
		C5204	QEMT1AM-128	E CAPACITOR	1200μF,10V
		C5205	QETC1AM-227	E CAPACITOR	220μF,10V
		C5206	QEMU1EM-187	E CAPACITOR	180μF,25V
		C5207	QETC1JM-106	E CAPACITOR	10μF,63V
		C5208	QETC1HM-106	E CAPACITOR	10μF,50V
		C5301	QETC1AM-107	E CAPACITOR	100μF,10V
		C5302	QETC1HM-106	E CAPACITOR	10μF,50V
		C5303	QETC1CM-107	E CAPACITOR	100μF,16V
		C5306	NCF21HZ-103X	CAPACITOR	0.01μF,50V
		C5307	QETC1HM-474	E CAPACITOR	0.47μF,50V
		C5308	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C5309	QETC1AM-107	E CAPACITOR	100μF,10V
		C5310	QETC1CM-226	E CAPACITOR	22μF,16V
		C5314	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C5315	QETC1AM-107	E CAPACITOR	100μF,10V
		C5316	QETC1CM-476	E CAPACITOR	47μF,16V
		C5317	QETC1CM-107	E CAPACITOR	100μF,16V
		C6001	QETC1CM-476	E CAPACITOR	47μF,16V
		C6003	QETC1CM-336	E CAPACITOR	33μF,16V
		C6004	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C6005	QETC1HM-106	E CAPACITOR	10μF,50V
		C6006	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C6008	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C6012	QETC1HM-106	E CAPACITOR	10μF,50V
		C6014	NCB21CK-473X	CAPACITOR	0.047μF,16V
		C6024	NCB21HK-471X	CAPACITOR	470pF,50V
		C6027	NDC21HJ-101X	CAPACITOR	100pF,50V
		C6031	QETC1HM-106	E CAPACITOR,S9500EH	10μF,50V
		C6032	NCB21EK-333X	CAPACITOR,S9500EH	0.033μF,25V
		C6033	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		C6051	NDC21HJ-101X	CAPACITOR	100pF,50V
		C6052	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C7201	NCB21HK-103X	CAPACITOR	0.01μF,50V
		L1	QQL29BJ-100Z	COIL	10μH
		L4	QQL29BJ-100Z	COIL	10μH
		L5	QQL29BJ-151Z	COIL	150μH
		L6	QQL29BJ-101Z	COIL	100μH
		L7	QQL29BJ-100Z	COIL	10μH
		L9	QQL29BJ-100Z	COIL	10μH
		L12	QQL071J-330Y	COIL	33μH
		L13	QQL071J-120Y	COIL	12μH
		L14	QQL071J-820Y	COIL	82μH
		L16	QQL29BJ-100Z	COIL	10μH
		L18	PELN1203	COIL	12μH
		L401	QQL29BJ-101Z	COIL	100μH
		L402	QQL03BJ-150Z	COIL	15μH

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		L2251	QQL29BJ-100Z	COIL	10μH
		L2252	QQL29BJ-151Z	COIL	150μH
		L3003	QQL29BJ-100Z	COIL	10μH
		L3302	QQL29BJ-100Z	COIL	10μH
		L4001	QQL071J-270Y	COIL	27μH
		L5201	PELN1184	COIL	33μH
		L5202	PU60944-330K	COIL	33μH
		L5301	QQL01BK-101Z	COIL	100μH
		L6002	QQL29BK-1R0Z	COIL	1μH
		L6031	QQL29BK-1R0Z	COIL,S9500EH	1μH
		CF3001	QAX0356-001Z	RESONATOR	
		CF3301	QAX0356-001Z	RESONATOR	
		CF7201	QAX0498-001Z	RESONATOR	
		X1	QAX0436-001	CRYSTAL RESONATOR	
		X3001	QAX0445-001	CRYSTAL RESONATOR	
		S3003	QSW0695-001	PUSH SWITCH	
		K5101	QQR0678-001Z	FERRITE BEAD	
		PC3001	GP3S123	PHOTOTRANSISTOR	
		PC3002	GP3S123	PHOTOTRANSISTOR	
	⚠	PC5101	ON3171/R/	IC(PHOTO COUPLE)	
	⚠	PC5301	PS2501-1	PH COUPLER,S9500E	
		T2051	PELN0860	OSC TRANSFORMER	
		T2052	PELN0861	OSC TRANSFORMER	
	⚠	T5001	QQS0021-001	SW TRANSF,S9500EH	
	⚠		QQS0027-001	SW TRANSF,S9500E	
		ET1	LP40280-001B	EARTH PLATE	
	⚠	F5001	QMF51E2-1R6J1	FUSE	T1.6A
		FC5001	QNG0006-001Z	FUSE CLIP,F5001	
		FC5002	QNG0006-001Z	FUSE CLIP,F5001	
	⚠	HS1	PQ46583-1-1	HEAT SINK,Q5101	
		OT1	QYTDST3008Z	SCREW,X2 Q5101	
		SD1	LP30364-001A	S.CASE(PRE/REC)	
		TU6001	QAU0076-002	TUNER	
		J7108	PU61012	MINI JACK,R.PAUSE I/O	
	⚠	LF5001	PELN1204-01-01	LINE FILTER	
	⚠	LF5002	QQR0608-001	LINE FILTER	
		CN1	QGF1018C1-13	FPC CONNECTOR,(1-13) U.DRUM	
		CN2001	QGF1207C1-07	FPC CONNECTOR,(1-7)A/C HEAD	
		CN2002	QGB2532J1-02	CONNECTOR,(1-2)FE HEAD	
		CN3001	QGB2015M1-08	CONNECTOR,(1-8)CAP.MOTOR	
		CN3003	QGB2532J1-02	CONNECTOR,(1-2)L.MOTOR	
		CN3004	QGB2534J2-04	CONNECTOR,(1-4)R.ENCODER	
		CN3005	QGF1207C1-12	FPC CONNECTOR,(1-12) FRONT	
		CN3301	QGB2011L2-06	CONNECTOR,(1-6)DD MOTOR	
		CN4001	QGF1207C1-04	FPC CONNECTOR,(1-4)DRUM MDA	
		CN4002	QGB2530K1-12	CONNECTOR,(1-12)DD SLOW	
	⚠	CN5001	QGA7901C3-02	CONNECTOR,(1-2)AC IN	
		CN7104	QGB2013K1-11	CONNECTOR,(1-11)TERMINAL	
		CN7105	QGB2013K1-13	CONNECTOR,(1-13)TERMINAL	
		CN7106	QGB2013K1-13	CONNECTOR,(1-13)TERMINAL	
		CN7162	QGF1207C1-05	FPC CONNECTOR,(1-5)FRONT	
	⚠	CP3003	ICP-N20	CIRCUIT PROTECTOR	
	⚠	CP4001	ICP-N15	CIRCUIT PROTECTOR	
	⚠	CP5301	ICP-N38	CIRCUIT PROTECTOR	
	⚠	CP5302	ICP-N25	CIRCUIT PROTECTOR	
	⚠	CP5303	ICP-N25	CIRCUIT PROTECTOR	

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3D SVHS BOARD ASSEMBLY <05>

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	PW1	LPA10033-05C	3D SVHS BOARD ASSY	
	IC1001	JCP8008	IC	
	IC1002	VC2076MP-XE	IC	
	IC1006	HA118092FP1	IC	
	IC1007	BA10358F	IC	
	IC1401	JCP8010-2	IC(DIGITAL)	
	IC1402	MN47V77S-XE	IC	
	Q1004	DTC144WU	TRANSISTOR	
	Q1005	DTC144WU	TRANSISTOR	
	Q1006	2SA1576A/QRS/-X	TRANSISTOR	
	Q1007	2SC4081/QRS/-X	TRANSISTOR	
	Q1010	DTC144WU	TRANSISTOR	
	Q1012	2SC4081/QRS/-X	TRANSISTOR	
	Q1014	2SC4081/QRS/-X	TRANSISTOR	
	Q1015	2SC4081/QRS/-X	TRANSISTOR	
	Q1016	DTC144WU	TRANSISTOR	
	Q1021	2SA1576A/QRS/-X	TRANSISTOR	
	Q1022	DTC144WU	TRANSISTOR	
	Q1023	DTC144EU	TRANSISTOR	
	Q1401	2SC1317/RS/-T	TRANSISTOR	
	Q1402	2SC4081/QRS/-X	TRANSISTOR	
	Q1403	2SC4081/QRS/-X	TRANSISTOR	
	Q1404	2SC4081/S/-X	TRANSISTOR	
	Q1405	2SC4081/QRS/-X	TRANSISTOR	
	Q1406	2SA1576A/QRS/-X	TRANSISTOR	
	Q1407	2SA1576A/QRS/-X	TRANSISTOR	
	Q1408	2SA1576A/QRS/-X	TRANSISTOR	
	Q1409	2SA1576A/QRS/-X	TRANSISTOR	
	Q1410	2SC4081/QRS/-X	TRANSISTOR	
	Q1411	2SA1576A/QRS/-X	TRANSISTOR	
	Q1412	DTC144WU	TRANSISTOR	
	Q1413	DTC144WU	TRANSISTOR	
	Q1414	DTC144WU	TRANSISTOR	
	Q1416	DTC144WU	TRANSISTOR	
	Q1417	2SC4081/QRS/-X	TRANSISTOR	
		or 2PC4081/R/-X	TRANSISTOR	
		or 2SD1819A/QRS/-X	TRANSISTOR	
	Q1418	2SC4081/QRS/-X	TRANSISTOR	
		or 2SD1819A/QRS/-X	TRANSISTOR	
		or 2PC4081/R/-X	TRANSISTOR	
	D1002	1SS133	DIODE	
		or 1N4148M	DIODE	
	D1003	1SS133	DIODE	
		or 1N4148M	DIODE	
	D1004	1SS133	DIODE	
		or 1N4148M	DIODE	
	D1006	1SS133	DIODE	
		or 1N4148M	DIODE	
	D1401	RD3.9ES/B2/-T2	ZENER DIODE	
	D1402	1SS133	DIODE	
		or 1N4148M	DIODE	
	R1002	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R1003	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
	R1004	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R1007	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R1008	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R1009	NRSA02J-125X	MG RESISTOR	1.2MΩ,1/10W
	R1010	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W
	R1011	NRVA02D-332X	CMF RESISTOR	3.3kΩ,1/10W
	R1012	NRVA02D-152X	CMF RESISTOR	1.5kΩ,1/10W
	R1013	NRVA02D-471X	CMF RESISTOR	470Ω,1/10W
	R1014	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W
	R1015	NRVA02D-102X	CMF RESISTOR	1kΩ,1/10W
	R1016	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
	R1017	NRSA02J-162X	MG RESISTOR	1.6kΩ,1/10W
	R1018	NRSA02J-151X	MG RESISTOR	150Ω,1/10W
	R1019	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
	R1020	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
	R1021	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
	R1023	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
	R1025	NRSA02J-823X	MG RESISTOR	82kΩ,1/10W
	R1026	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R1027	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
	R1028	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
	R1029	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R1030	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
	R1031	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
	R1032	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
	R1037	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R1038	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R1039	NRSA02J-394X	MG RESISTOR	390kΩ,1/10W
	R1045	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
	R1046	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
	R1047	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R1048	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R1049	NRSA02J-475X	MG RESISTOR	4.7MΩ,1/10W
	R1053	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R1054	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
	R1055	NRVA02D-563X	CMF RESISTOR	56kΩ,1/10W
	R1056	NRVA02D-224X	CMF RESISTOR	220kΩ,1/10W
	R1058	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
	R1059	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R1060	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
	R1063	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
	R1064	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
	R1065	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R1066	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
	R1067	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R1068	NRSA02J-361X	MG RESISTOR	360Ω,1/10W
	R1069	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R1070	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
	R1071	NRSA02J-184X	MG RESISTOR	180kΩ,1/10W
	R1072	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
	R1073	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
	R1401	NRSA02J-680X	MG RESISTOR	68Ω,1/10W
	R1402	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	R1403	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
	R1404	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
	R1405	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R1406	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R1407	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
	R1408	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
	R1409	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
	R1410	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
	R1411	NRSA02J-243X	MG RESISTOR	24kΩ,1/10W
	R1412	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
	R1413	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
	R1414	NRSA02J-331X	MG RESISTOR	330Ω,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R1415	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1416	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1417	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1418	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R1419	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R1420	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R1422	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
		R1423	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1425	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1428	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1429	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1430	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1431	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1432	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1433	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R1434	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R1435	NRSA02J-242X	MG RESISTOR	2.4kΩ,1/10W
		R1436	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R1437	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R1438	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1439	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R1440	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R1442	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R1443	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R1444	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R1445	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1446	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R1447	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R1448	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R1449	NRSA02J-470X	MG RESISTOR	47Ω,1/10W
		R1451	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R1452	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1454	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1455	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1456	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1457	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1458	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1459	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R1460	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
		R1461	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R1462	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R1463	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R1465	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R1467	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R1468	NRSA02J-162X	MG RESISTOR	1.6kΩ,1/10W
		R1470	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R1471	NRSA02J-333X	RESISTOR	33kΩ,1/10W
		R1472	NRSA02J-472X	RESISTOR	4.7kΩ,1/10W
		VR1002	QVZ3521-104Z	V RESISTOR,P.BURST LEVEL	
		VR1401	QVP0039-103Z	TRIM RESISTOR,DIA LEVEL	
		C1001	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C1002	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
		C1003	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C1005	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C1006	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1007	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1010	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1011	NDC21HJ-150X	CAPACITOR	15pF,50V
		C1013	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1014	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1015	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C1016	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1017	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1019	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1020	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1021	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1022	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1023	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1024	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1026	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1027	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C1028	QEKJ0JM-337	E CAPACITOR	330μF,6.3V
		C1029	QEKJ1HM-104	E CAPACITOR	0.1μF,50V
		C1030	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1031	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1033	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1034	QEPF1HM-105	NP E CAPACITOR	1μF,50V
		C1035	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C1036	QEKJ0JM-226	E CAPACITOR	22μF,6.3V
		C1037	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1038	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C1039	QEKJ1CM-476	E CAPACITOR	47μF,16V
		C1040	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1041	NDC21HG-301X	CAPACITOR	300pF,50V
		C1042	NDC21HG-301X	CAPACITOR	300pF,50V
		C1043	NDC21HG-221X	CAPACITOR	220pF,50V
		C1044	NDC21HG-820X	CAPACITOR	82pF,50V
		C1045	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1046	NDC21HG-271X	CAPACITOR	270pF,50V
		C1047	NDC21HJ-101X	CAPACITOR	100pF,50V
		C1048	NDC21HJ-181X	CAPACITOR	180pF,50V
		C1049	NDC21HG-301X	CAPACITOR	300pF,50V
		C1050	NDC21HG-301X	CAPACITOR	300pF,50V
		C1056	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1057	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1058	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1063	NDC21HJ-101X	CAPACITOR	100pF,50V
		C1064	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1065	QEKJ0JM-227	E CAPACITOR	220μF,6.3V
		C1066	NCB21EK-223X	CAPACITOR	0.022μF,25V
		C1067	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1068	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C1069	QEKJ1CM-106	E CAPACITOR	10μF,16V
		C1070	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1071	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1072	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1073	NDC21HJ-150X	CAPACITOR	15pF,50V
		C1074	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1082	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1086	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1087	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1088	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1089	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1092	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1095	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1401	QEKJ1CM-336	E CAPACITOR	33μF,16V
		C1402	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1403	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1404	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C1405	NDC21HJ-220X	CAPACITOR	22pF,50V
		C1406	NDC21HJ-6R0X	CAPACITOR	6pF,50V
		C1407	NDC21HJ-390X	CAPACITOR	39pF,50V

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1408	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1409	NCB21HK-103X	CAPACITOR	0.01μF,50V
C1410	QEKJ0JM-337	E CAPACITOR	330μF,6.3V
C1411	QEKJ1CM-106	E CAPACITOR	10μF,16V
C1412	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1413	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1414	NCB21HK-103X	CAPACITOR	0.01μF,50V
C1415	NDC21HJ-221X	CAPACITOR	220pF,50V
C1416	NDC21HJ-391X	CAPACITOR	390pF,50V
C1417	NDC21HJ-680X	CAPACITOR	68pF,50V
C1418	NDC21HJ-8R0X	CAPACITOR	8pF,50V
C1419	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1420	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1421	NDC21HJ-680X	CAPACITOR	68pF,50V
C1422	NDC21HJ-330X	CAPACITOR	33pF,50V
C1424	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1425	QEKJ0JM-337	E CAPACITOR	330μF,6.3V
C1426	NCB21HK-103X	CAPACITOR	0.01μF,50V
C1427	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1428	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1429	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1430	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1431	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1432	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
C1433	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1434	QEKJ0JM-337	E CAPACITOR	330μF,6.3V
C1435	QEKJ1HM-105	E CAPACITOR	1μF,50V
C1436	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1437	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1438	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1439	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1440	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1441	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1442	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1443	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1444	QEKJ1HM-105	E CAPACITOR	1μF,50V
C1445	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1446	NCB21EK-104X	CAPACITOR	0.1μF,25V
C1447	NCB21HK-222X	CAPACITOR	0.0022μF,50V
C1448	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1449	QEKJ0JM-337	E CAPACITOR	330μF,6.3V
C1450	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1451	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1454	NDC21HJ-220X	CAPACITOR	22pF,50V
C1455	NDC21HJ-390X	CAPACITOR	39pF,50V
C1457	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C1458	NCB21HK-103X	CAPACITOR	0.01μF,50V
C1459	NDC21HJ-470X	CAPACITOR	47pF,50V
C1460	NDC21HJ-470X	CAPACITOR	47pF,50V
C1461	NDC21HJ-470X	CAPACITOR	47pF,50V
C1462	NDC21HJ-470X	CAPACITOR	47pF,50V
C1463	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
C1464	NDC21HJ-330X	CAPACITOR	33pF,50V
C1465	NDC21HJ-470X	CAPACITOR	47pF,50V
C1468	NDC21HJ-470X	CAPACITOR	47pF,50V
C1469	NDC21HJ-470X	CAPACITOR	47pF,50V
C1470	NDC21HJ-470X	CAPACITOR	47pF,50V
C1471	NDC21HJ-470X	CAPACITOR	47pF,50V
C1472	NDC21HJ-470X	CAPACITOR	47pF,50V
C1473	NDC21HJ-470X	CAPACITOR	47pF,50V
L1001	QQL29BJ-220Z	COIL	22μH

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L1004	QQL071J-680Y	COIL	68μH
L1006	QQL29BJ-101Z	COIL	100μH
L1008	QQL29BJ-100Z	COIL	10μH
L1401	QQL071J-330Y	COIL	33μH
L1402	QQL29BJ-100Z	COIL	10μH
L1404	QQL071J-8R2Y	COIL	8.2μH
L1405	QQL071J-150Y	COIL	15μH
L1406	QQL071J-6R8Y	COIL	6.8μH
L1407	QQL29BJ-100Z	COIL	10μH
L1408	QQL29BJ-100Z	COIL	10μH
L1409	QQL071J-330Y	COIL	33μH
L1410	QQL29BJ-4R7Z	COIL	4.7μH
L1411	QQL071J-1R0Y	COIL	1μH
LC1401	QQR0657-013Z	NOISE FILTER	
LC1402	QQR0657-010Z	NOISE FILTER	
SD1	LP30431-001B	S.CASE(S-VHS)	
SD2	LP30406-001A	S.PLATE(S-VHS)	
BK1	LP40077-001A	BRACKET(BOARD)	
CN1001	QGG2503K2-30	HEADER PIN	
CN1002	QGG2503K2-30	HEADER PIN	
CN1003	QGF1217F1-07	FPC CONNECTOR,(1-7)TERMINAL	

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TERMINAL BOARD ASSEMBLY <06>

PW1	LPA10016-12A1	TERM BOARD ASSY,S9500EH	
	LPA10016-14A1	TERM BOARD ASSY,S9500E	
IC201	LC74799-9608	IC	
IC7131	BH7634AS	IC	
IC7132	BA3129F	IC	
IC7191	MM1231XF	IC	
Q203	2SD1819A/QRS/-X	TRANSISTOR	
	or 2SC4081/QRS/-X	TRANSISTOR	
	or 2PC4081/R/-X	TRANSISTOR	
Q7131	2SA1576A/QR/-X	TRANSISTOR	
Q7151	2SA1576A/QR/-X	TRANSISTOR	
Q7152	2SA1576A/QR/-X	TRANSISTOR	
Q7191	DTC114EU	TRANSISTOR	
	or RN1302	TRANSISTOR	
	or UN5211	TRANSISTOR	
D7132	1SS133	DIODE,S9500E	
	or 1N4148M	DIODE,S9500E	
D7133	1SS133	DIODE,S9500E	
	or 1N4148M	DIODE,S9500E	
D7191	1SS133	DIODE	
	or 1N4148M	DIODE	
D7192	1SS133	DIODE	
	or 1N4148M	DIODE	
R201	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R204	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R205	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R206	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R208	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R211	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R213	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R226	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R252	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R253	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R254	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R255	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R258	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R7101	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7102	QRE141J-750Y	RESISTOR	75Ω,1/4W
		R7104	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7105	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7106	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7107	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7108	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7109	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7111	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7112	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7113	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7114	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7115	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7116	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7131	QRE141J-181Y	RESISTOR	180Ω,1/4W
		R7132	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7133	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7134	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R7136	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7137	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R7138	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R7139	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7140	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
		R7141	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7147	NRSA02J-822X	MG RESISTOR,S9500E	8.2kΩ,1/10W
		R7148	NRSA02J-123X	MG RESISTOR,S9500E	12kΩ,1/10W
		R7149	NRSA02J-822X	MG RESISTOR,S9500E	8.2kΩ,1/10W
		R7150	NRSA02J-123X	MG RESISTOR,S9500E	12kΩ,1/10W
		R7151	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7152	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7153	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7154	NRSA02J-680X	MG RESISTOR	68Ω,1/10W
		R7157	QRE123J-391X	RESISTOR	390Ω,1/2W
		R7158	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7160	QRE123J-391X	RESISTOR	390Ω,1/2W
		R7161	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R7162	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R7191	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7192	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R7193	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R7194	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
		R7195	QRE142J-563	RESISTOR	56kΩ,1/4W
		R7196	QRE142J-152	RESISTOR	1.5kΩ,1/4W
		C201	NDC21HJ-100X	CAPACITOR	10pF,50V
		C205	NDC21HJ-470X	CAPACITOR	47pF,50V
		C206	NDC21HJ-470X	CAPACITOR	47pF,50V
		C207	NCB21CK-224X	CAPACITOR	0.22µF,16V
		C209	NCB21CK-224X	CAPACITOR	0.22µF,16V
		C211	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C213	QEKJ1HM-105	E CAPACITOR	1µF,50V
		C215	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
		C219	NCB21CK-224X	CAPACITOR	0.22µF,16V
		C221	NDC21HJ-330X	CAPACITOR	33pF,50V
		C251	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C252	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C253	NCB21CK-224X	CAPACITOR	0.22µF,16V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C254	QEKJ0JM-227	E CAPACITOR	220µF,6.3V
		C255	NCB21EK-333X	CAPACITOR	0.033µF,25V
		C256	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C258	NDC21HJ-560X	CAPACITOR	56pF,50V
		C7101	NCB21HK-681X	CAPACITOR	680pF,50V
		C7102	NCB21HK-681X	CAPACITOR	680pF,50V
		C7105	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C7106	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C7110	NCB21HK-681X	CAPACITOR	680pF,50V
		C7111	NCB21HK-681X	CAPACITOR	680pF,50V
		C7114	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C7115	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C7119	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C7120	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C7131	QEKJ1EM-475	E CAPACITOR	4.7µF,25V
		C7132	QEKJ1CM-476	E CAPACITOR	47µF,16V
		C7133	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7134	NCB21HK-223X	CAPACITOR	0.022µF,50V
		C7135	NCB21HK-223X	CAPACITOR	0.022µF,50V
		C7136	NCB21HK-223X	CAPACITOR	0.022µF,50V
		C7137	NCB21HK-223X	CAPACITOR	0.022µF,50V
		C7138	NDC21HJ-330X	CAPACITOR	33pF,50V
		C7139	NDC21HJ-330X	CAPACITOR	33pF,50V
		C7140	NDC21HJ-330X	CAPACITOR	33pF,50V
		C7141	NDC21HJ-330X	CAPACITOR	33pF,50V
		C7142	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C7143	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C7144	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C7145	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C7146	NCB21HK-102X	CAPACITOR	0.001µF,50V
		C7147	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C7151	QETA0JM-477	E CAPACITOR	470µF,6.3V
		C7153	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7154	QEKJ1CM-476	E CAPACITOR	47µF,16V
		C7155	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7156	QCBB1HK-101	CAPACITOR	100pF,50V
		C7157	NDC21HJ-101X	CAPACITOR	100pF,50V
		C7191	QEKJ1CM-107	E CAPACITOR	100µF,16V
		C7192	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7193	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7194	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7195	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C7196	QEKJ1CM-106	E CAPACITOR	10µF,16V
		C7197	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7198	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7199	NCB21HK-103X	CAPACITOR	0.01µF,50V
		L202	QQL29BJ-330Z	COIL	33µH
		L204	QQL29BK-1R0Z	COIL	1µH
		L206	QQL231J-1R0Y	COIL	1µH
		L251	QQL231J-100Y	COIL	10µH
		L252	QQL231J-220Y	COIL	22µH
		L7101	QQL231J-R22Y	COIL	0.22µH
		L7102	QQL231J-4R7Y	COIL	4.7µH
		L7103	QQL231J-4R7Y	COIL	4.7µH
		L7104	QQL231J-4R7Y	COIL	4.7µH
		L7105	QQL231J-4R7Y	COIL	4.7µH
		L7106	QQL231J-1R0Y	COIL	1µH
		L7107	QQL231J-4R7Y	COIL	4.7µH
		L7108	QQL231J-4R7Y	COIL	4.7µH
		L7109	QQL231J-4R7Y	COIL	4.7µH
		L7110	QQL231J-4R7Y	COIL	4.7µH

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L7112	QQL231J-4R7Y	COIL	4.7μH
L7113	QQL231J-4R7Y	COIL	4.7μH
L7114	QQL231J-4R7Y	COIL	4.7μH
L7115	NQL302N-4R7X	COIL	4.7μH
L7132	QQL231J-1R0Y	COIL	1μH
L7133	QQL231J-1R0Y	COIL	1μH
L7134	QQL231J-1R0Y	COIL	1μH
L7135	QQL231J-1R0Y	COIL	1μH
SW7151	QSW0693-001	SLIDE SWITCH	
TB1	LP30361-007B	TERMINAL BOARD ASSY	
OT1	QYTDSF3008Z	SCREW,X8	
ET1	PQ21987-1-1	EATH PLATE(TERMINAL)	
J7101	PEMC1177	RGB21PIN SOCKET,A/V 1	
J7102	PEMC1177	RGB21PIN SOCKET,A/V 2	
J7103	QNN0021-002	PIN JACK,AUDIO OUT[R]	
J7104	QNN0021-003	PIN JACK,AUDIO OUT[L]	
J7105	PEMC1190	MINI JACK,JLIP	
J7152	QND0010-001	S JACK,S OUT	
CN7101	QGB2013J1-13	CONNECTOR,(1-13)MAIN	
CN7102	QGB2013J1-13	CONNECTOR,(1-13)MAIN	
CN7103	QGB2013J1-11	CONNECTOR,(1-11)MAIN	
CN7151	QGF1208F1-07	FPC CONNECTOR,(1-7)3D SVHS	
CN7191	QGF1208F1-04	FPC CONNECTOR,(1-4)JACK	

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AUDIO CONTROL HEAD BOARD ASSEMBLY <12>

PW1	LPA10010-01A1	A/C HEAD BOARD ASSY
CN1	QGF1208F1-07	FPC CONNECTOR

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DEMOD BOARD ASSEMBLY <14>

PW1	LPA10021-01A	DEMOD BOARD ASSY,S9500EH	
	LPA10030-01B	DEMOD BOARD ASSY,S9500E	
IC6701	MSP3415D	IC,S9500EH	
	TDA9821/V1	IC,S9500E	
IC6702	TDA9840	IC,S9500E	
Q6701	DTC144EU	TRANSISTOR,S9500E	
	2SC3068	TRANSISTOR,S9500EH	
Q6702	DTC144EU	TRANSISTOR,S9500E	
	2SC3354/TS/-T	TRANSISTOR,S9500EH	
Q6704	DTC114EU	TRANSISTOR,S9500EH	
Q6705	DTC114EU	TRANSISTOR,S9500EH	
D6701	1N4148M	DIODE,S9500E	
	or 1SS133	DIODE,S9500E	
D6702	MTZJ9.1B	ZENER DIODE,S9500EH	
D6703	1N4148M	DIODE,S9500EH	
	or 1SS133	DIODE,S9500EH	
D6704	1N4148M	DIODE,S9500EH	
	or 1SS133	DIODE,S9500EH	
R6701	NRSA02J-101X	MG RESISTOR,S9500EH	100Ω,1/10W
	NRSA02J-331X	MG RESISTOR,S9500E	330Ω,1/10W

#	⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
	R6702	NRSA02J-101X	MG RESISTOR,S9500EH	100Ω,1/10W
		NRSA02J-273X	MG RESISTOR,S9500E	27kΩ,1/10W
	R6703	NRSA02J-271X	MG RESISTOR,S9500EH	270Ω,1/10W
	R6704	NRSA02J-101X	MG RESISTOR,S9500EH	100Ω,1/10W
		NRSA02J-152X	MG RESISTOR,S9500E	1.5kΩ,1/10W
	R6705	NRSA02J-331X	MG RESISTOR,S9500E	330Ω,1/10W
		NRSA02J-472X	MG RESISTOR,S9500EH	4.7kΩ,1/10W
	R6706	NRSA02J-101X	MG RESISTOR,S9500E	100Ω,1/10W
		NRSA02J-392X	MG RESISTOR,S9500EH	3.9kΩ,1/10W
	R6707	NRSA02J-101X	MG RESISTOR,S9500E	100Ω,1/10W
		NRSA02J-470X	MG RESISTOR,S9500EH	47Ω,1/10W
	R6708	NRSA02J-102X	MG RESISTOR,S9500EH	1kΩ,1/10W
		NRSA02J-103X	MG RESISTOR,S9500E	10kΩ,1/10W
	R6709	NRSA02J-271X	MG RESISTOR,S9500EH	270Ω,1/10W
		NRSA02J-392X	MG RESISTOR,S9500E	3.9kΩ,1/10W
	R6710	NRSA02J-102X	MG RESISTOR,S9500E	1kΩ,1/10W
		NRSA02J-151X	MG RESISTOR,S9500EH	150Ω,1/10W
	R6711	NRSA02J-392X	MG RESISTOR,S9500E	3.9kΩ,1/10W
	R6712	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R6713	NRSA02J-103X	MG RESISTOR.S9500EH	10kΩ,1/10W
		NRSA02J-273X	MG RESISTOR,S9500E	27kΩ,1/10W
	R6714	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
	R6715	NRSA02J-223X	MG RESISTOR,S9500EH	22kΩ,1/10W
	R6716	NRSA02J-102X	MG RESISTOR,S9500EH	1kΩ,1/10W
	R6717	NRSA02J-223X	MG RESISTOR,S9500EH	22kΩ,1/10W
	R6718	NRSA02J-684X	MG RESISTOR,S9500EH	680kΩ,1/10W
	VR6701	QVZ3521-222Z	V RESISTOR,SEPARATION1,S9500E	
	C6701	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
	C6702	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
	C6703	QEKJ1CM-336	E CAPACITOR,S9500EH	33μF,16V
		QEKJ1HM-225	E CAPACITOR,S9500E	2.2μF,50V
	C6704	QEKJ1CM-107	E CAPACITOR,S9500EH	100μF,16V
		QEKJ1HM-225	E CAPACITOR,S9500E	2.2μF,50V
	C6705	NCB21HK-103X	CAPACITOR,S9500EH	0.01μF,50V
		QEKJ1HM-225	E CAPACITOR,S9500E	2.2μF,50V
	C6706	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
		NCB21HK-223X	CAPACITOR,S9500EH	0.022μF,50V
	C6707	NCB21HK-103X	CAPACITOR,S9500EH	0.01μF,50V
		NDC21HJ-101X	CAPACITOR,S9500E	100pF,50V
	C6708	NCB21HK-103X	CAPACITOR,S9500EH	0.01μF,50V
		NDC21HJ-101X	CAPACITOR,S9500E	100pF,50V
	C6709	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
		QEKJ1CM-336	E CAPACITOR,S9500EH	33μF,16V
	C6710	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
		NCB21HK-682X	CAPACITOR,S9500EH	0.0068μF,50V
	C6711	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
		NCB21HK-682X	CAPACITOR,S9500EH	0.0068μF,50V
	C6712	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
		QEKJ1HM-225	E CAPACITOR,S9500EH	2.2μF,50V
	C6713	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
		QEKJ1HM-225	E CAPACITOR,S9500EH	2.2μF,50V
	C6714	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
		NCF21CZ-224X	CAPACITOR,S9500EH	0.22μF,16V
	C6715	QEKJ1CM-106	E CAPACITOR,S9500E	10μF,16V
	C6716	NCB21HK-103X	CAPACITOR,S9500E	0.01μF,50V
	C6717	NCB21HK-223X	CAPACITOR,S9500EH	0.022μF,50V
		QEKJ1HM-104	E CAPACITOR,S9500E	0.1μF,50V
	C6718	NDC21HJ-181X	CAPACITOR,S9500E	180pF,50V
		QEKJ1CM-336	E CAPACITOR,S9500EH	33μF,16V
	C6719	QEKJ1CM-106	E CAPACITOR,S9500EH	10μF,16V
		QEKJ1CM-336	E CAPACITOR,S9500E	33μF,16V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C6720	QEKJ1CM-106	E CAPACITOR,S9500EH	10µF,16V
	QEKJ1HM-225	E CAPACITOR,S9500E	2.2µF,50V
C6721	NCB21HK-103X	CAPACITOR,S9500EH	0.01µF,50V
	QEKJ1HM-225	E CAPACITOR,S9500E	2.2µF,50V
C6722	QEKJ1CM-106	E CAPACITOR,S9500EH	10µF,16V
C6723	NCB21HK-103X	CAPACITOR,S9500EH	0.01µF,50V
C6727	NDC21HJ-470X	CAPACITOR,S9500EH	47pF,50V
C6728	NDC21HJ-470X	CAPACITOR,S9500EH	47pF,50V
C6729	NDC21HJ-8R0X	CAPACITOR,S9500EH	8pF,50V
C6730	NDC21HJ-1R0X	CAPACITOR,S9500EH	1pF,50V
L6701	QQL29BK-1R0Z	COIL	1µH
L6702	QQL29BJ-3R3Z	COIL,S9500EH	3.3µH
	QQL29BK-1R0Z	COIL,S9500E	1µH
L6703	QQL231J-680Y	COIL,S9500EH	68µH
L6704	QQL29BK-1R0Z	COIL,S9500EH	1µH
L6705	QQL231J-221Y	COIL,S9500EH	220µH
CF6701	PU52775-2	CERAMIC FILTER,S9500E	
CF6702	PU49295-2	N FILTER,S9500E	
LC6701	QQR0657-013	NOISE FILTER,S9500EH	
X6701	PEVB0479	CRYSTAL RESONATOR,S9500E	
	QAX0443-001	CRYSTAL RESONATOR,S9500EH	
T6701	QQR0583-001	LC FILTER,S9500E	
SD1	LP30478-001A	SHIELD CASE(DEMOD),S9500E	
BK1	LP40077-001A	BRACKET(BOARD),S9500EH	
CN6701	QGG2502K1-11	HEADER PIN,(1-11)MAIN	

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SPATIALIZER BOARD ASSEMBLY <24>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	LPA10022-01A	SPATIALIZER BOARD ASSY	
IC2701	AN7395S	IC	
Q2701	2SC4081/QRS/-X	TRANSISTOR	
D2701	MTZJ10B	ZENER DIODE	
R2701	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R2702	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2703	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R2705	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R2706	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R2707	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R2708	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R2709	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
C2701	QEKJ1CM-106	E CAPACITOR	10µF,16V
C2702	QEKJ1CM-106	E CAPACITOR	10µF,16V
C2703	QEKJ0JM-226	E CAPACITOR	22µF,6.3V
C2704	QEKJ0JM-226	E CAPACITOR	22µF,6.3V
C2705	NCB21HK-563X	CAPACITOR	0.056µF,50V
C2706	NCB21HK-393X	CAPACITOR	0.039µF,50V
C2707	QEKJ1CM-106	E CAPACITOR	10µF,16V
C2708	QEKJ1CM-106	E CAPACITOR	10µF,16V
C2710	NCB21HK-103X	CAPACITOR	0.01µF,50V
C2711	NCB21HK-273X	CAPACITOR	0.027µF,50V
C2712	QEKJ1CM-106	E CAPACITOR	10µF,16V
C2713	QEKJ1CM-476	E CAPACITOR	47µF,16V
C2716	QEKJ1CM-476	E CAPACITOR	47µF,16V
CN2702	QGG2502K1-08	HEADER PIN,(1-8)MAIN	

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SW/DISPLAY BOARD ASSEMBLY <28>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	LPA10031-03B1	DISPLAY BOARD ASSY,S9500EH	
	LPA10031-05B1	DISPLAY BOARD ASSY,S9500E	
IC7001	M35500BFP	IC	
	or M35500BGP	IC	
	or M35500AGP	IC	
IC7002	PNA4652M00XB	IR DETECT UNIT	
	or GP1U281X	IR DETECT UNIT	
D7002	RD9.1ES/B2/-T2	ZENER DIODE	
	or UZ9.1BSB	ZENER DIODE	
	or MTZJ9.1B	ZENER DIODE	
D7004	1N4148M	DIODE	
	or 1SS133	DIODE	
D7005	1N4148M	DIODE	
	or 1SS133	DIODE	
D7009	SLR-342MC3F	LE DIODE	
D7010	SLR-342VC3F	LE DIODE	
R7001	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7002	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7003	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7004	QRE141J-471Y	RESISTOR	470Ω,1/4W
R7005	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7006	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7007	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7008	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7010	QRE141J-153Y	RESISTOR,S9500EH	15kΩ,1/4W
R7012	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7013	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7014	QRE141J-470Y	RESISTOR	47Ω,1/4W
R7020	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7021	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R7022	QRE141J-182Y	RESISTOR	1.8kΩ,1/4W
R7023	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
R7024	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7025	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7026	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R7027	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7028	QRE141J-393Y	RESISTOR	39kΩ,1/4W
R7030	QRE141J-103Y	RESISTOR	10kΩ,1/4W
R7031	QRE141J-122Y	RESISTOR	1.2kΩ,1/4W
R7032	QRE141J-182Y	RESISTOR	1.8kΩ,1/4W
R7033	QRE141J-222Y	RESISTOR	2.2kΩ,1/4W
R7034	QRE141J-272Y	RESISTOR	2.7kΩ,1/4W
R7035	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
R7036	QRE141J-682Y	RESISTOR	6.8kΩ,1/4W
R7037	QRE141J-153Y	RESISTOR	15kΩ,1/4W
R7038	QRE141J-393Y	RESISTOR	39kΩ,1/4W
R7040	QRE141J-331Y	RESISTOR	330Ω,1/4W
R7041	QRE141J-331Y	RESISTOR	330Ω,1/4W
R7050	QRE141J-393Y	RESISTOR	39kΩ,1/4W
C7001	QDVB1EZ-223Y	CAPACITOR	0.022µF,25V
C7002	QETC1HM-106	E CAPACITOR	10µF,50V
C7007	QEKC0JM-476	E CAPACITOR	47µF,6.3V
C7009	QCSB1HJ-150	CAPACITOR	15pF,50V
C7010	QCFB1HZ-104	CAPACITOR	0.1µF,50V
C7011	QETC0JM-337	E CAPACITOR	330µF,6.3V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C7019	QDVB1EZ-223Y	CAPACITOR	0.022μF,25V
C7192	QCBB1HJ-681	CAPACITOR	680pF,50V
C7194	QCBB1HJ-681	CAPACITOR	680pF,50V
L7191	QRE141J-101Y	RESISTOR	100Ω,1/4W
L7192	QRE141J-101Y	RESISTOR	100Ω,1/4W
S7001	QSW0456-002Z	TACT SWITCH,POWER	
S7002	QSW0456-002Z	TACT SWITCH,CH+	
S7003	QSW0456-002Z	TACT SWITCH,CH-	
S7004	QSW0456-002Z	TACT SWITCH,REC	
S7005	QSW0456-002Z	TACT SWITCH,PAUSE	
S7006	QSW0456-002Z	TACT SWITCH,PLAY	
S7007	QSW0456-002Z	TACT SWITCH,STOP/EJECT	
S7008	QSW0456-002Z	TACT SWITCH,FF	
S7009	QSW0456-002Z	TACT SWITCH,REW	
S7011	QSW0456-002Z	TACT SWITCH,SPATIALIZER	
S7012	QSW0456-002Z	TACT SWITCH,INSERT	
S7013	QSW0456-002Z	TACT SWITCH,ST BOX	
S7014	QSW0456-002Z	TACT SWITCH,TBC	
S7015	QSW0456-002Z	TACT SWITCH,A.DUB	
DI7001	QLF0032-002	FL TUBE	
HD1	LP30428-001A	FDP HOLDER(L),DI7001	
HD2	LP30429-001A	FDP HOLDER(R),DI7001	
HD3	PQM30038-6	LED HOLDER,D7009	
HD4	PQM30038-6	LED HOLDER,D7010	
FW7001	PW30101-60AA442	PARALLEL WIRE	
CN7001	QGF1207C1-12	FPC CONNECTOR,(1-12)MAIN	

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REC SAFETY BOARD ASSEMBLY <32>

PW2	LPA10031-01B2	REC SAFETY BOARD ASSY
S7041	QSW0602-002	PUSH SWITCH

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JACK BOARD ASSEMBLY <36>

PW3	LPA10031-01B3	JACK BOARD ASSY	
R7192	QRE141J-0R0Y	RESISTOR	0Ω,1/4W
C7192	QCBB1HJ-681	CAPACITOR	680pF,50V
C7194	QCBB1HJ-681	CAPACITOR	680pF,50V
L7191	QRE141J-101Y	RESISTOR	100Ω,1/4W
L7192	QRE141J-101Y	RESISTOR	100Ω,1/4W
J7191	PEMC1126	PIN JACK,VIDEO IN	
J7192	PEMC0922	PIN JACK(SW),VIDEO IN	
J7193	PEMC0922	PIN JACK(SW),AUDIO(L)IN	
J7194	QND0010-001	S JACK,S IN	
CN7191	QGF1207F1-05	FPC CONNECTOR,(1-5)MAIN	
CN7192	QGF1207F1-04	FPC CONNECTOR,(1-4)TERMINAL	

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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LOADING MOTOR BOARD ASSEMBLY <55>

PW2	LPA10010-01A2	LOADING MOTOR BOARD ASSY
CN1	QGB2533K1-02	CONNECTOR

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VSC BOARD ASSEMBLY <72>

PW1	PB10995C	VSC BOARD ASSY	
IC2501	LC85405E	IC	
	or LC85405NE	IC	
Q2501	2SD1819A/QRS/-X	TRANSISTOR	
	or 2PC4081/R/-X	TRANSISTOR	
	or 2SC4081/QRS/-X	TRANSISTOR	
Q2502	UN521E	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or DTC144WU	TRANSISTOR	
D2501	1N4148M	DIODE	
	or 1SS133	DIODE	
R2501	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R2502	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2503	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
R2504	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2505	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R2506	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
R2507	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R2508	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W
R2509	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R2510	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
R2511	NRSA02J-154X	MG RESISTOR	150kΩ,1/10W
R2512	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R2513	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R2514	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2515	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R2516	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R2518	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R2519	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R2520	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
R2521	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R2522	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
C2501	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
C2502	NCB21HK-562X	CAPACITOR	0.0056μF,50V
C2503	QEKJ1HM-105	E CAPACITOR	1μF,50V
C2505	QEKJ0JM-107	E CAPACITOR	100μF,6.3V
C2506	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2507	QEKJ1CM-226	E CAPACITOR	22μF,16V
C2508	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2509	QEKJ1CM-106	E CAPACITOR	10μF,16V
C2510	QEKJ1CM-476	E CAPACITOR	47μF,16V
C2511	NCB21HK-222X	CAPACITOR	0.0022μF,50V
C2512	NDC21HJ-331X	CAPACITOR	330pF,50V
C2513	NCB21HK-103X	CAPACITOR	0.01μF,50V
C2518	NCB21HK-102X	CAPACITOR	0.001μF,50V
C2519	NCB21HK-103X	CAPACITOR	0.01μF,50V
L2501	QQL242J-2R2Z	COIL	2.2μH

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
LPF2501	PELN1137	LOW PASS FILTER	
CF2501	QAX0399-001Z	RESONATOR	
LC2501	QQL29BJ-470Z	COIL	
CN2501	QGG2502K1-09	HEADER PIN,(1-9)MAIN	

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DD SLOW BOARD ASSEMBLY <78>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PW2	LPA10016-01A2	DD SLOW BOARD ASSY	
IC4101	BA10324AF-XE	IC	
	or UPC324G	IC	
IC4102	TC4S30F	IC	
IC4103	BU4066BCF	IC	
Q4101	UN521E	TRANSISTOR	
	or DTC144WU	TRANSISTOR	
	or RN1309	TRANSISTOR	
Q4102	UN521E	TRANSISTOR	
	or RN1309	TRANSISTOR	
	or DTC144WU	TRANSISTOR	
D4101	DA204U	DIODE	
D4103	DAN202U	DIODE	
D4104	1SS133	DIODE	
	or 1N4148M	DIODE	
D4105	1SS133	DIODE	
	or 1N4148M	DIODE	
R4101	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R4102	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
R4103	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4104	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4105	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
R4106	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4107	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4108	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R4109	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R4110	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4114	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R4115	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
C4101	NCB21CK-224X	CAPACITOR	0.22μF,16V
C4102	QERF1CM-106	E CAPACITOR	10μF,16V
C4103	NCB21HK-103X	CAPACITOR	0.01μF,50V
C4105	NCB21EK-563X	CAPACITOR	0.056μF,25V
CN4101	QGB2530J1-12	CONNECTOR,(1-12)MAIN	

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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